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Food Assistance and Welfare Reform

The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA) has changed welfare as we know it, dramatically altering the social safety net for poor Americans. PRWORA seeks to move people from welfare to work by imposing a 5-year lifetime limit on receiving Federal welfare benefits, requiring recipients to participate in work activities within 2 years of receiving benefits, and penalizing States that have too few welfare recipients in work activities. States have been given more flexibility in designing and implementing programs that meet their needs, and individuals have been given added personal responsibility to provide for themselves through job earnings and for their children through child-support payments by absentee parents.

In addition, PRWORA had important implications for the Food Stamp Program, the largest Federal food assistance program. Although the 1996 legislation decentralized the welfare system with block grants to States, the Food Stamp Program remained a federally administered entitlement program. The legislation instituted a small across-the-board reduction in food stamp benefits and limited some deductions from income when calculating benefits. Able-bodied adults without dependents face a 3-month limit on receiving food stamps, unless they are working or in a job-training program, and most noncitizens cannot receive food stamps until they become citizens or work for at least 10 years.

Between 1996 and 2000, expenditures for the Food Stamp Program fell 33 percent, as average monthly participation dropped from 25.5 million people per month to 17.2 million. Lower unemployment and lower poverty rates reduced the number of people eligible to participate in food assistance programs, and PRWORA restructured the cash welfare system in ways that may have reduced participation in food assistance programs. Disentangling the effects of economic conditions from program changes is important to understanding what lies ahead for food assistance programs. If economic conditions are mostly responsible for recent declines, participation is likely to rebound in an economic downturn. By contrast, if program changes are responsible for the decline, then participation will remain low so long as current policies are maintained.

USDA's Economic Research Service (ERS) has developed a multifaceted research program to assess the effects of welfare reform on Federal food assistance programs. One research effort has weighed the effects of a strong economy and changes in welfare programs on participation in the Food Stamp Program. Our research found that 35 percent of the caseload decline from 1994 to 1998 was associated with economic growth, while a lower share appeared to be associated with changes in program rules. Other ERS research found that food stamp participation declined even among low-income households, most of which continued to be eligible for food stamps. Did fewer households apply for food stamps because fewer felt they needed food assistance or was it because they found it more difficult or less socially acceptable to get food stamps?

Researchers looking at rural-urban differences in food stamp participation found that food stamp use has fallen more in urban areas since welfare reform was enacted. The authors suggest that changes in the welfare system have affected food stamp participation differently in rural and urban places. Another article discusses how community-based efforts, such as farmers markets and community gardens, complement Federal food assistance programs by increasing the quantity, quality, and affordability of food. The research findings in these articles provide a strong empirical basis to better understand the effects of welfare reform on U.S. food assistance programs and the implications of these interactions for the nutritional and economic well-being of low-income families.

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Strong Economy and Welfare Reforms Contribute to Drop in Food Stamp Rolls

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In fiscal 2000, the Food Stamp Program provided benefits to 17.2 million low-income Americans, a level lower than any year since 1979. Just 6 years earlier, in fiscal 1994, program participation peaked at over 27 million Americans. According to recent studies, the decline in participation was due in part to a strong economy and in part to 1996 welfare reform legislation. This new law, the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA), made some food stamp participants ineligible and redesigned the cash welfare system in ways that may have further reduced food stamp participation.

The rapid decline in program participation reflects major life changes for millions of low-income individuals and families. Each family or individual that has left the program, or that has not needed to apply in the first place, has its own story. Many of these stories center on good news—a new job or a raise—brought by the unusually strong economic expansion in the second half of the 1990's. Increased earnings lifted incomes for many fami-

lies and reduced their need for food stamp benefits.

Other stories reflect changes in the Nation's social safety net, especially following major welfare reform legislation enacted in 1996. PRWORA imposed a 3-month time limit on able-bodied adults without dependents to receive food stamps, unless they worked or participated in an approved work-related pro-

gram at least 20 hours per week, or lived in areas granted waivers because of high unemployment rates or insufficient number of jobs. A limited number of cases were exempted at the State's discretion. According to the General Accounting Office, the number of able-bodied adults without dependents participating in the Food Stamp Program dropped from about 1.1



The strong economy of the mid to late 1990's, which featured a soaring stock market and low unemployment rates, helped lift incomes of many families and reduce food stamp rolls.

Credit: Chicago Board of Trade.

The author is an economist with the Food and Rural Economics Division, Economic Research Service, USDA.

million in 1996 to fewer than 0.4 million (362,000) in 1999.

PRWORA also made most legal, noncitizen immigrants ineligible for food stamps (illegal or undocumented aliens have always been ineligible). The new law made exceptions for legal, noncitizen immigrants with a substantial work history, those admitted as refugees, and those who were U.S. veterans and their dependents. Congress later reinstated eligibility for those elderly, disabled, and child-age immigrants who were already in the United States when the welfare reform law was passed. This reinstatement, however, still left most legal immigrants ineligible. Furthermore, recent data indicate that large numbers of eligible U.S.-born children of legal immigrants no longer participate in the program. USDA's Food and Nutrition Service (FNS) estimates that the participation rate in the Food Stamp Program by eligible U.S.-born children of permanent resident aliens dropped from 64 percent in 1996 to 38 percent in 1998, just a year after many of these children's parents and other adult family members became ineligible.

A July 2000 report by USDA's Economic Research Service (ERS) weighed the effects of both a booming economy and changes in welfare programs on Food Stamp Program participation. ERS found that 35 percent of the caseload decline from 1994 to 1998 was associated with new employment growth and reduced unemployment, while less than 5 percent of the decline appeared to be associated with changes in program rules. As is typical for this type of statistical analysis, about half of the caseload decline could not be explained. If some of the "unexplained" caseload decline was due to welfare reform, the effect of PRWORA may be higher than the statistical analysis found.

Food Stamp Participation Fluctuated During the 1980's and 1990's

The Food Stamp Program is the largest Federal food assistance program and a mainstay of the Federal safety net. The program paid out almost \$15 billion in food stamp benefits in fiscal 2000, an average monthly benefit of \$73 per participant. The maximum benefit is the amount of money needed to purchase a nutritionally adequate diet as defined by the Federal Government's Thrifty Food Plan. The benefits, in the form of either coupons or electronic benefits transfer (EBT) payments, may be used to purchase food and nonalcoholic beverages in authorized stores. The Federal Government then reimburses stores for the value of the food.

To qualify for the program, a household without an aged or disabled member must have gross income less than 130 percent of the Federal poverty level. Effective through September 2001, a family of four must have gross monthly income less than \$1,848 to qualify. All households must have net incomes (gross income minus certain deductions) less than the poverty level. Finally, with some exceptions, the household must meet asset limits of \$2,000 for most households or \$3,000 for households with a member over age 60.

Most people who receive cash assistance through Temporary Assistance for Needy Families (TANF) also receive food stamps, but it cannot be said that most food stamp participants receive TANF. Seventy-three percent of food stamp households received no assistance from TANF in 1999. TANF serves primarily single-parent families with children (and a smaller number of two-parent families with children), while the Food Stamp Program serves many elderly and disabled people living alone, single adults, and two-

parent working families who are not eligible for TANF (see box). Individuals who apply for TANF or Supplemental Security Income (SSI), the major cash assistance programs for people with disabilities, are permitted to simultaneously apply for food stamps, so participation patterns for these assistance programs are somewhat related.

Food stamp participation rose during the recession of the early 1980's and then declined during the middle and late 1980's. Participation rose again to new heights during the recession of the early 1990's, before declining again after 1994. Food stamp participation and the national unemployment rate have followed a roughly parallel track during much of the last 20 years (fig. 1), which suggests that economic conditions have a plausible role in fluctuating food stamp participation.

Food stamp participation and the unemployment rate diverge during some periods, which suggests that factors other than the economy may also affect food stamp participation. In the early 1980's, for example, program participation had already declined by the time unemployment peaked. In the early 1990's, program participation continued to rise for 2 years after the recession ended while unemployment began to fall.

Several major policy changes during the last two decades may have affected the number of people receiving food stamps (fig. 2). The Omnibus Budget Reconciliation Act of 1981 applied new eligibility requirements and lowered some deductions, perhaps reducing program participation in the years that followed. The Food Security Act of 1985 expanded eligibility by increasing the resource limits and designating categorical eligibility to households in which all members participate in either Aid to Families with Dependent Children (AFDC) or SSI. The Hunger Prevention Act of 1988 and the Mickey Leland

Childhood Hunger Relief Act of 1993 raised benefits slightly and effected some other modest changes that eased program eligibility

restrictions. During the early 1990's, Congress enacted several laws that expanded Medicaid eligibility, which may have indirectly increased

food stamp participation: People often apply for Medicaid at the same local office where they apply for food stamps, using the same set of enrollment forms.

In the late 1980's and early 1990's, the Federal Government began to allow States more leeway in applying for temporary "waivers" from Federal regulations for administering AFDC, the predecessor to TANF. Waivers allowed States to experiment with such new policies as time limits and work requirements in AFDC, which may have reduced participation in the Food Stamp Program as well: Some people may have left the Food Stamp Program at the same time they left AFDC, even if they continued to be eligible for food stamp benefits.

Major policy changes and dramatic economic growth both occurred at about the same time that program participation fell steeply in the middle and late 1990's. Because it is difficult to pinpoint the cause of the recent decline in food stamp participation on the basis of national trends alone, researchers at the University of Oregon, the University of Florida, and ERS used State-level data to investigate the causes behind the recent caseload declines. By 1998, almost every State experienced declining unemployment and changes in both the Food Stamp Program and cash assistance programs, but the timing of these changes varied from State to State. Using statistical models and State-level data, the researchers found that the largest share of the Food Stamp Program caseload decline—35 percent—was related to the strong economy. Changes to the rules for cash assistance programs and the introduction of TANF appear to be associated with a much smaller share of the caseload decline—about 5 percent in one statistical model and even less in two other models. (Changes in cash assistance do not include the direct changes to the Food Stamp Program

Characteristics of Food Stamp Households in 1994 and 1999

From 1994 to 1999, while the number of Food Stamp Program participants declined, the characteristics of food stamp households also changed. Well over half of all food stamp households contain children, although this proportion declined slightly from 1994 to 1999 (see table). About 20 percent of all food stamp households contained an elderly person in 1999, up 4 percentage points from 1994. The raw number of households containing a disabled person actually grew from 1994 to 1999, even as the total number of food stamp households declined, so the proportion of food stamp households containing a disabled person has grown rapidly (although, as the notes to the table observe, part of the apparent increase is due to a change in the definition of "disabled").

The main sources of cash income for food stamp households have also changed. The proportion of food stamp households that received Aid to Families with Dependent Children (AFDC) or Temporary Assistance for Needy Families (TANF) declined sharply from 38 percent in 1994 to 27 percent in 1999. Meanwhile, this period saw growth in the proportion of food stamp households that received earned income, Supplemental Security Income (SSI), and Social Security. While the Food Stamp Program still supplements the resources available to low-income single-parent households, a larger share of its benefits help low-income two-parent working families, the elderly, and the disabled.

Fewer Food Stamp Participants Receive AFDC/TANF, While More Are Elderly or Disabled

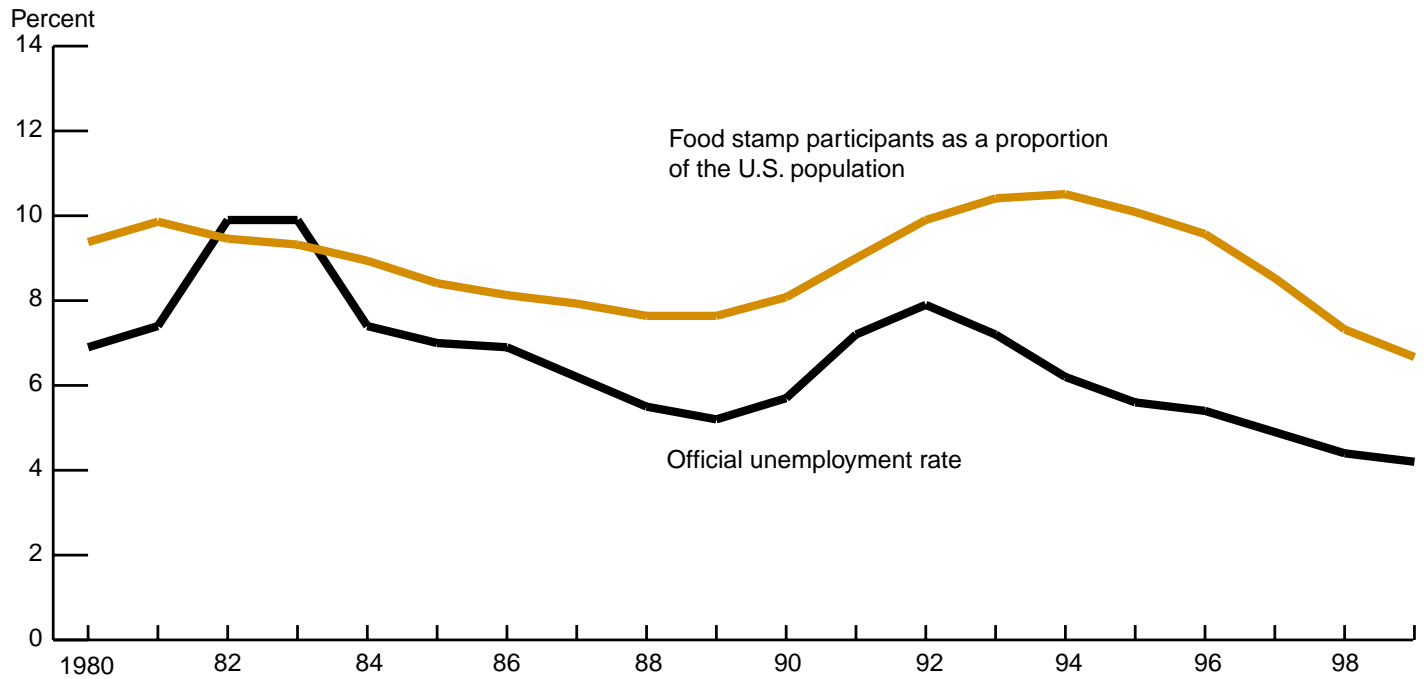
Household type	Participating food stamp households			
	1994	1999	1994	1999
	— Millions —		— Percent —	
Total	11.1	7.7	100.0	100.0
Containing children	6.8	4.3	61.1	55.7
Containing elderly person(s)	1.8	1.5	15.8	20.1
Containing disabled person(s)	1.4	2.0	12.5	26.5
Receiving earned income	2.4	2.1	21.4	26.8
Receiving AFDC/TANF	4.2	2.1	38.1	27.3
Receiving SSI	2.4	2.3	21.4	30.2
Receiving Social Security	2.0	1.9	18.0	24.7

AFDC = Aid to Families with Dependent Children; TANF = Temporary Assistance for Needy Families; SSI = Supplemental Security Income.

Notes: The definition of "disabled" was modified in 1995, which caused the proportion of households defined as disabled in that year to increase by 5.6 percentage points, from 13.3 percent under the old definition to 18.9 percent under the new definition. Thus, this definition change caused some, but not most, of the increase in disabled households from 1994 to 1999 reported here. Percentages do not sum to 100 percent because households may belong to more than one type.

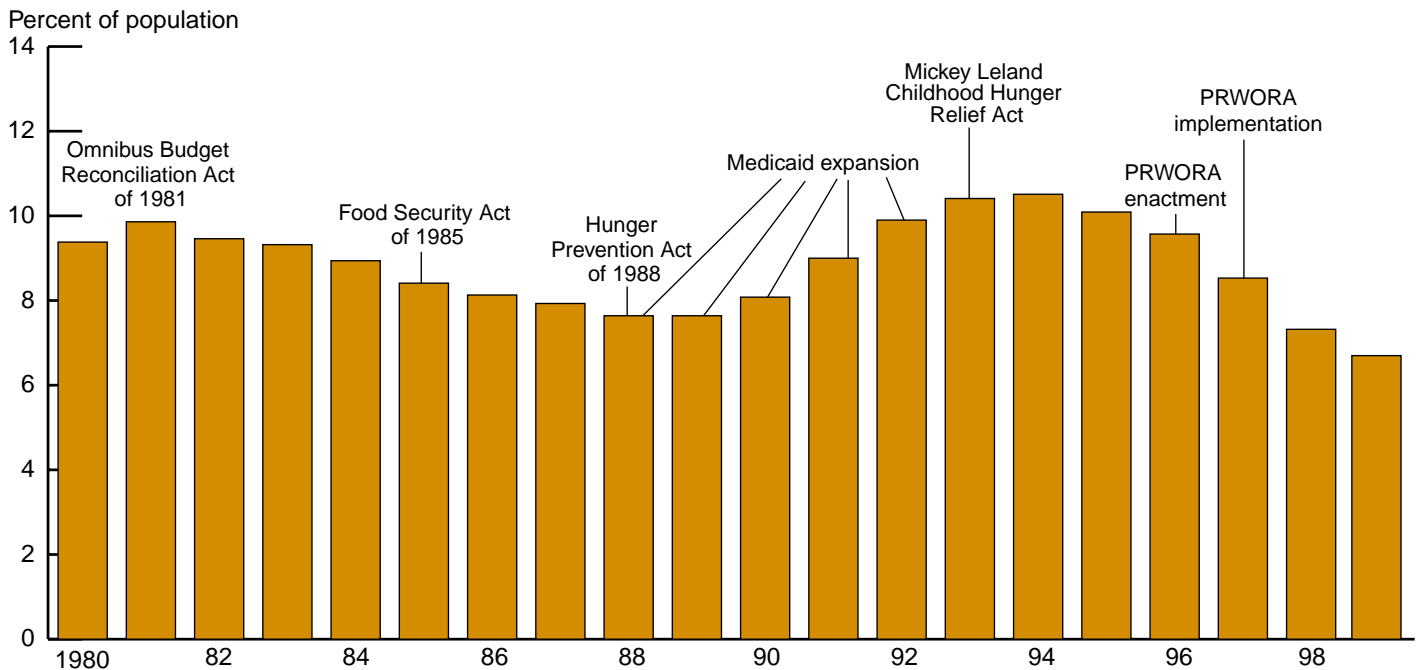
Source: Rosso, Randy, and Catherine Palermo. *Characteristics of Food Stamp Households: Fiscal Year 1999* (Advance Report). U.S. Department of Agriculture, Food and Nutrition Service, July 2000.

Figure 1
Food Stamp Participation and the Unemployment Rate Follow Similar Trends Over Time



Source: USDA's Food and Nutrition Service, and U.S. Department of Labor, Bureau of Labor Statistics.

Figure 2
Food Stamp Participation May Have Been Influenced by Policy Changes



Source: USDA's Food and Nutrition Service.

that were made in the 1996 law, such as those that affect immigrants and able-bodied adults without dependents.) The full effect of the 1996 reforms could be somewhat higher due to changes in Food Stamp Program administration and practices that were not picked up by the policy measures used in this study.

Other recent studies found similar results. Researchers at Mathematica Policy Research, Inc., under contract to ERS, used a more detailed classification of welfare policy changes (such as time limits and work requirements) to look at how these changes and economic factors influenced Food Stamp Program participation. Mathematica found that economic growth caused about 40 percent of the caseload decline. Detailed policy changes appeared to have little effect—from 0 to 2 percent of the caseload decline—but the timing of another 23 percent of the decline coincided with the implementation of the 1996 welfare reform, without being linked to a specific policy change that the researchers were able to measure.

What Happened to People Who Left the Food Stamp Program?

The experiences of people who left the program also help explain how economic conditions and program changes affected food stamp participation. Studying these food stamp “leavers” is not the same as studying caseloads in general. Caseload changes depend not only on how many people leave the program, but also on how many people enter the program. Nevertheless, two recent studies in Illinois and Arizona sponsored by ERS shed light on what happens to people when they leave the Food Stamp Program. (Two other reports, in Iowa and South Carolina, were

not completed at the time of this writing.)

Researchers for the Illinois and Arizona studies used two methods to track the experiences of one-time food stamp participants who left the program in 1997, just as the welfare reform law was being implemented. First, the researchers used information from program administrative records and from Federal Government records on unemployment insurance. These unemployment insurance records report earnings from work, but with some gaps. For example, earnings that are paid in cash may not be reported to the Government. These records, however, still provide useful information about earnings of people who left the Food Stamp Program. Second, in 1999, the researchers surveyed a sample of people who left the Food Stamp Program about their employment situation and their general economic well-being.

The unemployment insurance data showed that household earnings increased fairly rapidly after households left the Food Stamp Program. On average, earnings increased 21 percent in Illinois and 17 percent in Arizona in the first 2 years after leaving the program. These results offer encouraging evidence that many leavers improve their economic situation by working. The proportion of households that are working did not increase rapidly in either State, however, indicating that most of the earnings growth occurred with households that had already been working in some capacity. Moreover, even households with earnings typically did not earn more than the poverty level. As noted in previous Food Stamp Program studies, many leavers return to the program within a year. In Illinois, 40 percent of households that left the Food Stamp Program returned within 12 months (which may be compared with 42 percent who returned within a year in a study using national data from

the early 1990's). Some of these program returns are short-lived—the fraction of leavers in 1997 who participated in the program 1 year after leaving was only 25 percent in Illinois and 13 percent in Arizona.

In a followup survey interview in Illinois, 55 percent of people who left the program cited employment or increased income as their reason for leaving. Another 13 percent were sanctioned, meaning that their benefits had been cut or eliminated because of failure to follow program requirements. Twelve percent cited administrative-related reasons such as the difficulty of reapplying for program benefits. (The Arizona study also conducted a followup interview but did not ask specifically why the respondent had left the Food Stamp Program.) Like the findings from unemployment insurance data, the survey results suggest that favorable employment conditions are a primary factor in an individual's decision to leave the Food Stamp Program, but they are not the only factor.

Are Growing Numbers of Eligible People Going Unserved?

The decline in Food Stamp Program caseloads raises concerns about those who are eligible for the program but who do not participate. Do people who leave cash assistance programs incorrectly assume they are no longer eligible for food stamps? Or do people simply choose not to participate in the Food Stamp Program because their economic outlook is favorable and they know they would not be eligible for a long period?

The July 2000 ERS report investigated how many people with annual incomes below 130 percent of the poverty line received food stamps in 1998 versus 1994. Having income below 130 percent of the poverty line is one of several

requirements for Food Stamp Program eligibility. ERS found that 55 percent of the decline in participation from 1994 to 1998 was associated with decreased use of food stamps by individuals in households with incomes less than or equal to 130 percent of the poverty line. Twenty-six percent of the decline was associated with people leaving the Food Stamp Program as their annual incomes rose above 130 percent of the poverty line. (The remaining 19 percent of the decline was associated with decreased use of food stamps by people with annual incomes above 130 percent of poverty—most of whom presumably had incomes below this level for some fraction of the year, making them eligible in some months but not others.)

These participation patterns are corroborated by a recent report from FNS, which used a more elaborate method for measuring the number of people eligible for the Food Stamp Program. The FNS report found that 70.8 percent of people eligible for the Food Stamp Program participated in 1994, but only 59.4 percent of eligible people participated in 1998. The number of eligible people fell from 37.0 million in 1994 to 30.6 million in 1998, but the number of participants fell even faster, so the evidence shows a growing number of eligible people do not participate in the Food Stamp Program.

In July 1999, USDA announced several actions to reduce barriers to participation and make all eligible

Americans aware of their eligibility, including a public education campaign, an information hotline, a new toolkit for State and local outreach efforts, and new rules that allow States to simplify income-reporting requirements for program participants.

ERS is involved in several studies using national and local surveys to investigate the causes of food stamp caseload declines. One study is examining how decisions to participate in the Food Stamp Program are influenced by such factors as customer service at local welfare offices or, perhaps, heightened stigma associated with welfare reform. Understanding the decisions households make about participating in the Food Stamp Program helps predict how caseloads will fluctuate in the future and also helps ensure that the program serves all eligible people who want to participate.

References

- Castner, Laura. *Trends in FSP Participation Rates: Focus on 1994 to 1998*. Washington, DC: Mathematica Policy Research, Inc., November 2000.
- Figlio, David, Craig Gundersen, and James Ziliak. "The Effects of the Macroeconomy and Welfare Reform on Food Stamp Caseloads," *American Journal of Agricultural Economics*, Vol. 82, No. 3, August 2000, pp. 635-641.
- Gleason, Phil, Carole Trippe, and Scott Cody. *The Effects of Welfare Reform on the Characteristics of the Food Stamp Population*. Princeton, NJ: Mathematica Policy Research, Inc., forthcoming.
- Gundersen, Craig. "Economic Growth, Welfare Reform, and the Food Stamp Program," *FoodReview*, Vol. 21, Issue 1, January-April 1998, pp. 23-27.
- McConnell, Sheena. *The Increase in Food Stamp Participation Between 1989 and 1990: A Report to Congress*. Washington, DC: Mathematica Policy Research, Inc., August 1991.
- Mills, Gregory, and Robert Kornfeld. *Study of Arizona Households Who Leave the Food Stamp Program*. Cambridge, MA: Abt Associates Inc., 2000.
- Rangarajan, Anu, and Philip Gleason. *Food Stamp Leavers in Illinois: How Are They Doing Two Years Later?* Princeton, NJ: Mathematica Policy Research, Inc., 2000.
- U.S. General Accounting Office. *Food Stamp Program: Implementation of the Employment and Training Program for Able-Bodied Adults Without Dependents* (GAO-01-391-R). February 2001.
- Wilde, Parke, Peggy Cook, Craig Gundersen, Mark Nord, and Laura Tiehen. *The Decline in Food Stamp Program Participation in the 1990's*, Food Assistance and Nutrition Research Report No. 7. U.S. Department of Agriculture, Economic Research Service, July 2000.
- Zedlewski, Sheila, and Sarah Brauner. *Declines in Food Stamp and Welfare Participation: Is There a Connection?* Discussion Paper 99-13. Washington, DC: The Urban Institute, October 1999. ■

Food Stamp Participation Rate Down in Urban Areas But Not in Rural

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The Food Stamp Program is a cornerstone of America's federally administered nutrition assistance to those in need. While the program serves a predominantly urban population, nearly a quarter of food stamp recipients live in rural areas and they receive just under a quarter of all food stamp benefits. In a recent study of rural-urban differences in food stamp participation, researchers found that the number of people eligible to receive food stamps declined in both urban and rural areas between 1996 and 1998. However, the participation rate—the proportion of people eligible for food stamps who participate in the program—declined in urban areas, but not in rural areas.

Urban and rural food stamp participants differ in demographic and economic characteristics. Rural households that receive food stamps are less likely to have children and more likely to include an elderly person than their urban counterparts. Most food stamp recipients in rural areas are White, non-Hispanic. In contrast, most food stamp recipients in urban areas are Black or Hispanic. Rural food stamp households

have slightly higher average incomes than urban food stamp households.

The 1996 Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) completely overhauled the cash welfare system. While PRWORA, or welfare reform as it is more commonly known, decentralized the cash welfare system and moved from a cash entitlement to a work focus, it made relatively small changes to the Food Stamp Program. The most impor-

tant change to the Food Stamp Program was to restrict food stamp eligibility for two groups: permanent resident noncitizens and able-bodied adults without children. As a result, many noncitizens are now ineligible for food stamps, and able-bodied adults without children are restricted to 3 months of benefits in every 36 months unless they work or participate in a qualifying employment and training program. In fiscal 1995, before welfare reform, these two groups made up less



Although welfare reform left the Food Stamp Program relatively unchanged, it may have had unintended consequences for food stamp recipients.

Credit: USDA.

McConnell is a senior economist and Ohls is a senior fellow with Mathematica Policy Research, Inc. This study was funded under a grant from the Economic Research Service, USDA, and support from Mathematica Policy Research, Inc.

than 10 percent of all food stamp participants.

Welfare reform also had important *unintended* consequences on the Food Stamp Program. Changes in the cash welfare system may have led to a decline in the food stamp rolls by reducing the likelihood that people who are eligible for food stamps would participate in the program. For example, persons who are no longer receiving cash welfare may be less likely to know they are eligible for food stamps. The reduction in the participation rate was primarily in urban areas. This article discusses the effect of welfare reform on Food Stamp Program participation in rural and urban areas.

Food Stamp Rolls Fell More in Urban Areas

To encourage self-sufficiency, PRWORA imposed work requirements and time limits for the receipt of benefits on recipients of cash assistance. As a result, cash welfare caseloads fell dramatically. The number of people on welfare fell 34 percent between 1996 and 1998. Unexpectedly, this decline in the number of cash welfare recipients was accompanied by a decline in the number of food stamp recipients. Between 1996 and 1998, the number of food stamp recipients fell 23 percent.

The size of the decline in food stamp participation varied significantly by State. For example, between 1996 and 1998, food stamp participation dropped less than 10 percent in South Carolina and South Dakota and more than 30 percent in Texas, Ohio, and Mississippi.

Data from the Food Stamp Program's quality control system show that food stamp use fell more in urban counties than in rural counties. (An urban county is defined as a county within a metropolitan statistical area. All other counties are defined as rural.) Between 1996 and 1998, the number of food stamp

recipients fell 25 percent in urban areas, compared with 17 percent in rural areas (fig. 1).

These findings are sensitive to the data used to estimate food stamp participation. If the March supplement to the Current Population Survey (CPS), a nationwide household survey conducted by the U.S. Census Bureau, is used to estimate the decline in food stamp participation rather than the Food Stamp Program's quality control data, the decline in rural areas is larger than the decline in urban areas. We found that differences in the findings using the two data sets vary by State and cannot be accounted for by a single data problem in one or a few States. We believe that the Food Stamp Program's quality control data is the stronger data set for this analysis because the CPS tends to substantially undercount Food Stamp Program recipients, as well as recipients in other assistance programs that use income as an eligibility criterion. Nevertheless, the discrepancy between the two data sets should be kept in mind in assessing the overall findings.

The number of food stamp participants can fall for two reasons. First, the number of people who are eligible to receive food stamps could fall. Second, the participation rate could

fall—that is, fewer people who are eligible for food stamp benefits could decide to participate. Since 1996, both the number of people who are eligible for food stamps and the participation rate have fallen nationwide, but the relative importance of these two factors varies between rural and urban areas. In urban areas, both the number of people eligible for food stamps and the participation rate declined. In rural areas, only the number of eligible people declined.

Number Eligible Fell More in Rural Areas...

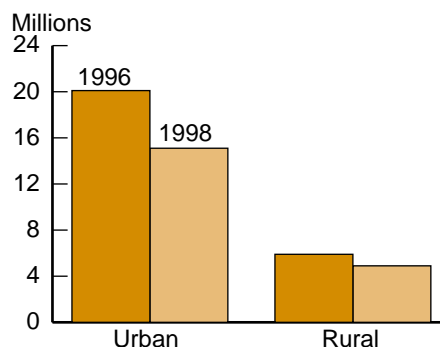
Researchers at Mathematica Policy Research, Inc., under a contract for USDA's Food and Nutrition Service (FNS), estimated the number of people eligible for food stamps using a complex simulation model. The model uses data from the March 1997 and March 1999 CPS's to determine household eligibility for food stamp benefits. The model mimics the work of a food stamp caseworker, using information on the household's demographic and economic characteristics to determine eligibility.

The number of people who are eligible for food stamps has fallen in both rural and urban areas, but the decline was greater in rural areas. Overall, the number of people eligible for food stamps in the United States fell 16 percent between 1996 and 1998. The decline in rural areas was 19 percent, compared with a 15-percent drop in urban areas (fig. 2).

One reason for the larger decline in the number of eligible people in rural areas is the larger decline in the number of people in poverty in rural areas. While the poverty rate is still higher in rural areas, the number of people in poverty between 1996 and 1998 decreased 10 percent in rural areas, more than double the 4-percent decline in urban areas.

Changes in food stamp eligibility rules do not seem to explain why

Figure 1
Food Stamp Caseloads Dropped More in Urban Areas Than in Rural



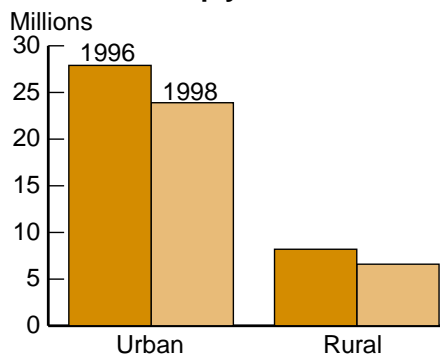
Source: Fiscal 1996 and 1998 Food Stamp Program Quality Control Sample.

the number of eligible people fell more sharply in rural areas than urban areas. Noncitizens, the group most affected by changes in eligibility rules, are concentrated in urban areas. In 1994, prior to welfare reform, noncitizens constituted 14 percent of all people eligible for food stamps in urban areas but less than 4 percent in rural areas. Also, rural areas contain a slightly smaller proportion of people eligible for food stamps who are able-bodied adults without children—another group that faced food stamp restrictions following welfare reform.

...While Urban Areas Had Bigger Declines in Participation

The Food Stamp Program was designed to provide food assistance to anyone in need, regardless of where the person lives. The participation rate is an important indicator of how well the program is fulfilling its mission. We measure the participation rate as the annual average number of people receiving food stamp benefits divided by the annual average number of people who are eligible for food stamps. (Our participation rates differ slightly from FNS's official participation rates. FNS rates refer to a particular month and make some

Figure 2
Number of Food Stamp Eligibles Fell More Sharply in Rural Areas



Source: March 1997 and 1999 Current Population Surveys.

imputations and other adjustments that we did not make.)

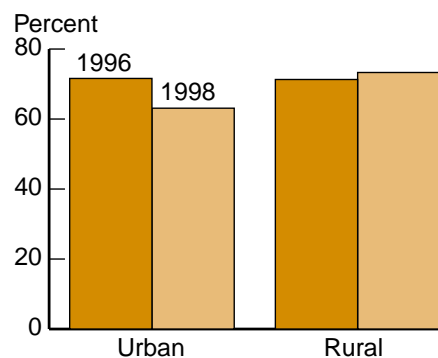
The overall participation rate in the Food Stamp Program fell from 71 percent in 1996 to 65 percent in 1998. This fall, however, was due only to a decline in the participation rate in urban areas. Between 1996 and 1998, the participation rate in urban areas dropped from 72 percent to 63 percent, while the participation rate increased slightly in rural areas from 71 percent in 1996 to 73 percent in 1998, higher than in urban areas (fig. 3).

Historically, food stamp participation rates fall as the economy improves. Thus, the strong economy of the second half of the 1990's partly explains the overall fall in the food stamp participation rate (see "Strong Economy and Welfare Reforms Contribute to Drop in Food Stamp Rolls" elsewhere in this issue). However, rural-urban differences in economic growth are unlikely to explain the differences in the urban and rural participation rates. We would expect that the larger decline in the number of rural people in poverty would have led to a decline in the rural participation rate rather than a small increase.

Welfare reform may have reduced the rate of participation in the Food Stamp Program indirectly by reducing the number of people receiving cash welfare. Food stamp use is higher among people who receive cash welfare than among those who are eligible for food stamps but do not receive cash welfare. By weakening the link between the two programs, welfare reform may have lessened participation in the Food Stamp Program.

Changes in the cash welfare system may have reduced the food stamp participation rate in four ways. First, food stamp participants who leave welfare (because they find work, hit the time limits, or are denied benefits for failing to meet a program requirement) may think they are no longer eligible for food

Figure 3
Food Stamp Participation Rates Down for Urban Areas, Up Slightly for Rural



Source: Fiscal 1996 and 1998 Food Stamp Program Quality Control Sample and the March 1997 and 1999 Current Population Surveys.

stamps. Second, food stamp participants who leave welfare may not feel the benefits of receiving only food stamps outweigh the time and other burdens associated with staying on food stamps. Third, policies designed to divert people from enrollment in TANF by providing one-time financial assistance or job placement assistance may inadvertently discourage people from applying for food stamps. Fourth, welfare reform, by placing a greater emphasis on self-sufficiency, may have increased the stigma of receiving food stamps.

Experiences of Urban Food Stamp Users Differ From Rural Users

If welfare reform has contributed to the fall in the participation rates, why has it had much more of an impact in urban areas than in rural areas? Studies of experiences with the program from both participants and eligible nonparticipants suggest that at least part of the explanation may be differences in experiences at rural and urban local food stamp offices.

In 1996 and 1997, Mathematica Policy Research, Inc., conducted

the National Food Stamp Survey (NFSS) for FNS to obtain information about Food Stamp Program experiences. As part of the study, Mathematica interviewed 2,000 randomly chosen food stamp recipients and about 450 randomly chosen eligible nonparticipants.

The high degree of overall satisfaction with the program was perhaps the most notable finding of the NFSS. More than 85 percent of participants who responded to the survey were satisfied with the overall program, and participants expressed similarly high rates of satisfaction with the application and recertification procedures. Satisfaction with the application and re-certification process was comparable in rural and urban areas. Satisfaction with the overall program was slightly higher in rural areas—89 percent of rural participants reported that they were satisfied with the overall program, compared with 87 percent of urban participants.

The NFSS revealed differences between urban and rural areas in respondents' perceived treatment by food stamp office caseworkers (fig. 4). The NFSS divided participants into three groups: urban, rural, and mixed (those residing in areas with both rural and urban components). In rural areas, 96 percent of respon-

dents said that their caseworkers treated them respectfully, compared with 90 percent of respondents in urban areas. Similarly, a higher proportion of respondents in rural areas said their caseworkers provided them the necessary services.

These rural-urban differences confirmed similar findings from focus group discussions conducted by Mathematica as part of a 1996 study for FNS on the reasons for low Food Stamp Program participation among the working poor and the elderly. The study comprised focus group discussions in six sites—two in urban areas (Baltimore City, Maryland, and Houston, Texas), two in suburban areas (Baltimore County, Maryland, and the area surrounding the cities of Eugene and Springfield, Oregon), and two in rural areas (Polk County, Texas, and Lincoln County, Oregon). The focus group members were working or elderly and either (1) receiving food stamps or (2) not receiving food stamps, but with sufficiently low incomes to qualify them for food stamps.

Focus group members in the urban areas, both those currently receiving food stamps and those nonparticipants with sufficiently low incomes to be eligible for food stamps, emphasized problems with the food stamp office staff. Some

focus group members complained that the staffs' attitudes were unpleasant and that staff often treated food stamp clients disrespectfully. One member of an urban focus group commented: "It's the attitude of the people that work there. You know...they act like they don't really care whether they help you or not." Focus groups in the rural areas reported fewer complaints about the food stamp office staff. Rural focus group members talked about smaller food stamp offices where the staffs were more personable and had a greater sense of community.

Whether rural residents are more affected by the stigma of receiving food stamps than urban residents is not clear. In the NFSS survey, respondents in rural areas perceived less stigma associated with receiving food stamps than those in urban areas. In the 1996 focus group study, stigma-related issues were brought up more often in rural areas. When asked why they didn't apply for food stamps, focus group members typically replied, "It's pride," "I want to be independent," "I would find it very embarrassing," "I would feel like a failure."

The embarrassment felt by rural area participants was mainly due to using food stamps in grocery stores. While urban residents could use food stamps in stores and retain anonymity, rural residents felt there was not a store in town that they could go to without likely running into someone they knew. As one focus group member in Lincoln County, Oregon, said, "You go to the grocery store...and the clerks and all the other people around you kind of look down on you because you are using food stamps."

All States either currently use or plan to use electronic benefits transfer (EBT) systems in which ATM-like cards replace paper food stamp coupons. The EBT system allows food stamp recipients to authorize the transfer of their Government

Figure 4
Rural Food Stamp Participants More Satisfied With Caseworkers



Source: 1996 National Food Stamp Program Survey.

benefits to a food retailer's account to purchase food. The focus groups felt that the EBT system reduced but did not eliminate the stigma of using food stamps.

These differences in experiences between recipients of food stamps in rural and urban areas suggest an explanation for the rural-urban difference in the trends in food stamp participation rates. Studies list confusion about eligibility as one of the most important reasons that eligible people do not receive food stamps. Confusion about food stamp eligibility at a time of major changes in the cash welfare system may well be greater in urban areas. Less confusion may occur in smaller rural offices, where fewer clients are affected by the changes in the cash welfare system and caseworkers may spend more time ensuring that clients receive the assistance they need.

Falling participation rates are a concern if people who need food assistance are not receiving food

stamps. For this reason, understanding why participation rates are falling in urban areas is important. USDA's Economic Research Service is continuing the research efforts of FNS to examine how practices in local food stamp offices and reforms to cash welfare have affected participation in the Food Stamp Program.

References

Castner, Laura. *Trends in FSP Participation Rates: 1994-1998*. U.S.

Department of Agriculture, Food and Nutrition Service, 2000.

McConnell, Sheena, and James Ohls. "Food Stamps in Rural America: Special Issues and Common Themes." Paper presented at the Rural Dimensions of Welfare Reform: A Research Conference on Poverty, Welfare, and Food Assistance, May 24, 2000.

Ohls, James, Michael Ponza, Lorenzo Moreno, Amy Zambrowski, and Rhoda Cohen. *Food Stamp Participants' Access to Food Retailers*. Princeton, NJ: Mathematica Policy Research, Inc., July 1999.

Ponza, Michael, and Sheena McConnell. *Reaching the Working Poor and Poor Elderly: Interim Report on Focus Groups*. Washington, DC: Mathematica Policy Research, Inc., December 1996.

Ponza, Michael, James C. Ohls, Lorenzo Moreno, Amy Zambrowski, and Rhoda Cohen. *Customer Service in the Food Stamp Program*. Princeton, NJ: Mathematica Policy Research, Inc., July 1999.

Stavrianos, Mike, Scott Cody, and Kimball Lewis. *Characteristics of Childless Unemployed Adult and Legal Immigrant Food Stamp Participants: Fiscal Year 1995*. U.S. Department of Agriculture, Food and Nutrition Service, 1997.

Wilde, Parke, Peggy Cook, Craig Gunderson, Mark Nord, and Laura Tiehen. *The Decline in Food Stamp Program Participation in the 1990's*, Food Assistance and Nutrition Research Report No. 7. U.S. Department of Agriculture, Economic Research Service, July 2000. ■

Food Stamp Participation and Food Security

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Participation in the Food Stamp Program declined by 34 percent from 1994 to 1998. The strong economy accounts for much of the decline, but national food security survey data indicate that a rising proportion of low-income households either did not know they were eligible for food stamps or found it more difficult or less socially acceptable to get them. Many of these households did not participate in the Food Stamp Program even though they felt that they needed more food.

The Food Stamp Program is the Nation's largest food assistance program and a mainstay of the national nutrition safety net. Even after the recent decline in food stamp participation, about 1 in every 15 Americans, some 18 million people, benefited from the program.

Improved household incomes resulting from the strong economy accounted for much of the decline in the food stamp caseload, as increased employment and higher incomes left fewer households eligible for food stamps (see "Strong Economy and Welfare Reforms Contribute to Drop in Food Stamp Rolls" elsewhere in this issue). However, program participation declined even among low-income

households, most of which were eligible for food stamps. More than half of the overall drop in the food stamp caseload from 1994 to 1998 resulted from the decline in participation by low-income households.

This article takes a closer look at those low-income households. Why do fewer of them receive food stamps now than in the mid-1990's? Do fewer of them feel a need for food assistance? Or do fewer of them receive food stamps—even though they feel they need more food—because they do not know they are eligible for food stamps, or find it more difficult or less socially acceptable to get food stamps? These are questions of some importance to USDA, which is responsible for assuring that food stamps are readily available to all eligible households. States and local communities also want to know if needy households are getting the food assistance for which they are eligible. New national survey data on household hunger and food insecurity shed light on these important questions.

Less Need for Food Stamps or Less Use by People in Need?

The decline in food stamp use among low-income households does not, by itself, demonstrate that people who needed food assistance

found it more difficult or less socially acceptable to get food stamps. An improved economy can also be expected to lower food stamp participation, even among eligible households, by reducing the felt need for food assistance. Eligible households may have more stable incomes, even though still below the eligibility level, and may therefore feel less need for food assistance. The average income of eligible households may have increased, making them eligible for a smaller total food stamp benefit, thus reducing their incentive to apply for food stamps. They may be more confident in their ability to get a job in the near future and may therefore spend down assets or borrow to meet immediate food needs rather than apply for food stamps.

On the other hand, some of the decline in the use of food stamps by low-income households may have resulted from reduced access to, knowledge about, or social acceptability of participating in the program due to changes in the welfare system. Although the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA) did not directly affect food stamp eligibility of most recipients (except for a 3-percent reduction in benefit levels resulting from a technical correction in the benefit formula), it may have had indirect effects that reduced food stamp participation. Some families that lost

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cash welfare assistance, or did not qualify to get cash assistance, because of changes under PRWORA did not know they were eligible for food stamps. This finding is consistent throughout several recent studies, including one by the Urban Institute, a nonpartisan economic and social policy research organization. Also, it may have become less socially acceptable to receive welfare assistance, including food stamps, as a result of the highly publicized debate over, and changes in, the welfare system.

In addition to these indirect effects, PRWORA reduced food stamp eligibility for most noncitizens and for able-bodied working-age persons without dependents. These changes would have directly affected caseloads of these groups and would account for a small proportion of the overall decline in the food stamp caseload.

These two factors—less need for food stamps because of the improving economy and reduced access to, knowledge about, and social acceptability of food stamps because of welfare reform—both likely to reduce food stamp participation, converged in the last half of the 1990's. Assessing their effects on the food stamp caseload during a period when both underwent considerable change poses a difficult analytic challenge.

Food Security Data May Provide Answers

USDA sponsors an annual survey conducted by the U.S. Census Bureau that collects information about food security, food insecurity, and hunger in U.S. households (see box). The household food security scale calculated from these data is a direct measure of conditions that the Food Stamp Program is designed to ameliorate—food insecurity and hunger. The food security survey also includes questions about partic-

ipation in various food programs, including the Food Stamp Program. Data are available for each year beginning in 1995, not long after food stamp caseloads peaked and before the changes resulting from the 1996 welfare reform act took effect.

The survey assesses the food security status of U.S. households through a series of 18 questions about food-related behaviors, experiences, and conditions known to characterize households having difficulty meeting their food needs. The questions cover a wide range of severity of food stress, from worrying about running out of food, to children going whole days with no

food. Each question specifies that a lack of money or other resources to obtain food is the reason for the condition or behavior, so the scale calculated from the responses is not affected by hunger due to voluntary dieting, illness, or fasting.

Households are classified as food secure, food insecure without hunger, or food insecure with hunger based on their score on the food security scale. "Food secure" households had assured access, at all times, to enough food for an active, healthy life. "Food insecure" households were uncertain of having, or unable to acquire, adequate food to meet basic needs at least some time during the year because

How Do We Know How Many Households Are Food Secure?

The statistics in this article are based on data from the Current Population Survey (CPS)—the same survey that provides data for calculating the Nation's monthly unemployment rates and annual poverty rates. The U.S. Census Bureau conducts the CPS for the Bureau of Labor Statistics, interviewing a nationally representative sample of about 50,000 households each month. Once each year, following the labor-force interview, the same households are asked a series of questions about food spending, use of food assistance programs, and behaviors and experiences characterizing food insecurity and hunger.

A scale measuring the food security status of each household is calculated from responses to 18 questions about food-related behaviors, experiences, and conditions. The scale locates each household along a continuum extending from fully food secure to severely food insecure (with hunger). Based on their scores on this scale, households are classified into three categories: food secure, food insecure without hunger, and food insecure with

hunger. Examples of the questions include:

"We worried whether our food would run out before we got money to buy more." Was that often, sometimes, or never true for you in the last 12 months?

"The food that we bought just didn't last and we didn't have money to get more." Was that often, sometimes, or never true for you in the last 12 months?

In the last 12 months did you or other adults in the household ever cut the size of your meals or skip meals because there wasn't enough money for food?

In the last 12 months were you ever hungry, but didn't eat, because you couldn't afford enough food?

(For households with children) In the last 12 months did any of the children ever not eat for a whole day because there wasn't enough money for food?

For a more complete description of how household food security is measured and a list of all the questions in the scale, go to www.ers.usda.gov/briefing/food-security.

of inadequate household resources for food. In households classified as "food insecure with hunger," the level of food deprivation was so severe that one or more household members were hungry at times because they could not afford enough food.

Food security status can be used as an indicator of households' perceived need for food assistance. If most households that were eligible for, but not receiving, food stamps, were food secure, then it may reasonably be inferred that they just did not feel the need for food assistance. On the other hand, if such households were food insecure, and especially if they were hungry, it may be inferred that they did feel a need for more food than they were getting but found it difficult, impossible, or socially unacceptable to obtain food stamps.

Similarly, changes in food security for low-income households not receiving food stamps during the recent rapid decline in the food stamp caseload can help explain why the caseload declined. If food stamp use by low-income households declined because their perceived need for food assistance declined due to improved economic circumstances or other reasons, then the prevalence of food insecurity and hunger among low-income households not receiving food stamps would be expected to remain unchanged or to decline. However, if food stamp use by low-income households declined because getting food stamps became more difficult, or because some of the households were no longer eligible or were unaware that they were eligible, or they felt that food stamps were less socially acceptable, then the prevalence of food insecurity and hunger among low-income households not receiving food stamps would be expected to increase.

Higher Incomes Reduced Number of Eligible Households...

Increasing incomes from 1995 to 1999 reduced the number of households eligible for food stamps and contributed substantially to the decline in food stamp use. The proportion of households with incomes below 130 percent of the federal poverty level declined from 24.2 percent in 1995 to 19.1 percent in 1999. Adjusted for population growth, this reduction represents a decline of 21.0 percent in the size of the low-income, generally food-stamp-eligible, population.

Annual income information available in the data sources used for this article identifies food stamp eligibility correctly for most, but not all, households. Some households with annual incomes above 130 percent of the poverty line were eligible for food stamps during part of the year when their incomes were lower. Conversely, some households with annual incomes below 130 percent of poverty were ineligible for food stamps because they held substantial assets. Also, participation in the Food Stamp Program is underreported in the household survey by about 20 percent. As a result of these two factors, the proportion of low-income households that report receiving food stamps is substantially lower than actual food stamp program participation by eligible households.

...But Food Stamp Use Also Declined Among Eligible Households

Even among low-income households, food stamp use declined by more than one-third from 1995 to 1999 (table 1). Declines were largest for noncitizens (57.3 percent) and for two-parent families with chil-

dren (41.2 percent) and smallest for women living alone (23.8 percent). In percentage points, the decline was largest for single mothers with children (21.0 percentage points). This decline is of particular interest because single mothers with children represented about 40 percent of all low-income households that received food stamps in 1995. Further, this is the group most affected by changes in cash welfare programs and therefore most likely to have had food stamp use reduced by the indirect effects of changes in those programs.

Food Security Increased Because of Higher Incomes...

For the Nation as a whole, food insecurity declined by 1.7 percentage points from 1995 to 1999 (table 2). Food insecurity declined only slightly among households with incomes above 130 percent of the poverty line, and registered a statistically insignificant increase among households with incomes below 130 percent of the poverty line. Therefore, the major factor in the overall improvement in food security in the United States during 1995-99 was the declining number of low-income households.

...But Decreased for Low-Income Households Not Getting Food Stamps

By contrast, low-income households not receiving food stamps—the category of primary interest for this study—registered an increase in the prevalence of food insecurity from 23 percent in 1995 to 28 percent in 1999. The size of the increase in the rate of food insecurity for this particular group indicates that many low-income households stopped getting food stamps, or did not

Table 1

Food Stamp Use Declined Sharply for All Types of Low-Income Households Between 1995 and 1999

Type of household	Households receiving food stamps			
	1995	1999	Change	
	Percent	Percent	Percentage points	Percent
All low-income households (incomes below 130 percent of poverty line)	32.2	20.2	-12.0	-37.4
Noncitizens	33.1	14.1	-19.0	-57.3
Citizens	32.1	21.0	-11.1	-34.8
Two-parent with children	31.5	18.6	-12.9	-41.2
Single mother with children	63.5	42.5	-21.0	-33.2
Multi-adult with no children	15.8	10.0	-5.8	-36.2
Men living alone	18.2	11.2	-7.0	-38.5
Women living alone	21.8	16.6	-5.2	-23.8

Note: Two measures of change are presented. The first is the difference between 1995 and 1999 in the percentage of households receiving food stamps. The second measure, in the last column, is the change in the number of households that received food stamps, adjusting for the change in the total number of households in the category. This latter measure is appropriate for comparing the size of changes across household types.

Source: Calculated by ERS using data from CPS Food Security Supplements, April 1995 and April 1999.

Table 2

Food Insecurity Among Low-Income Households Not Receiving Food Stamps Rose Between 1995 and 1999

Type of household	Food insecurity (with or without hunger)			Hunger		
	1995	1999	Change	1995	1999	Change
	Percent	Percent	Percentage points	Percent	Percent	Percentage points
All households	11.8	10.1	-1.7	4.2	3.0	-1.2
Households with incomes above 130 percent of poverty line	6.2	5.6	-.6	1.9	1.3	-.6
Low-income households (income below 130 percent of poverty line)	31.5	32.4	—	11.9	10.7	-1.2
Low-income households not receiving food stamps during the previous month	23.2	28.2	5.0	8.8	8.9	—
Noncitizens	33.3	34.2	—	12.1	9.3	—
Citizens	22.1	27.4	5.3	8.4	8.8	—
Two-parent with children	26.6	32.0	5.5	6.4	6.1	—
Single mother with children	36.3	41.4	—	14.9	11.1	-3.8
Multi-adult with no children	16.8	20.9	4.2	6.3	8.3	—
Men living alone	23.9	29.7	5.8	12.8	12.1	—
Women living alone	16.9	19.9	3.0	6.7	8.0	—
Low-income households receiving food stamps during the previous month	48.9	48.8	—	18.6	17.9	—
Noncitizens	51.5	52.7	—	17.3	17.7	—
Citizens	48.6	48.5	—	18.8	17.9	—
Two-parent with children	49.5	52.4	—	17.4	10.9	—
Single mother with children	51.3	47.5	—	19.0	15.3	—
Multi-adult with no children	46.8	43.6	—	16.7	23.6	—
Men living alone	54.8	55.6	—	33.8	24.7	—
Women living alone	38.6	50.2	11.6	15.3	24.6	9.3

— = Change was not significant at 90-percent confidence level.

Source: Calculated by ERS using data from CPS Food Security Supplements, April 1995 and April 1999.

apply for food stamps, in spite of the fact that they felt they needed more food. This, in turn, suggests that a growing proportion of low-income households did not know they were eligible for food stamps, found it difficult to get into the program, or felt that it was not socially acceptable to do so.

The increase in food insecurity among low-income, non-food-stamp households was widespread, affecting all household types (fig. 1). Among low-income, non-food-stamp households headed by U.S. citizens, increases in food insecurity were substantial and similar in magnitude for all household types except women living alone. Even for women living alone, however, food

insecurity increased by 3 percentage points. This category also experienced the smallest decline in Food Stamp Program participation (table 1), which may explain the smaller increase in food insecurity observed in this category.

Low-income, non-food-stamp households headed by noncitizens had a substantially higher rate of food insecurity than did citizen-headed households with similar characteristics. Noncitizen-headed households, however, registered only a small, statistically insignificant, change in food insecurity from 1995 to 1999. Under PRWORA, many noncitizens became ineligible for food stamps, and food stamp use by noncitizens declined by more

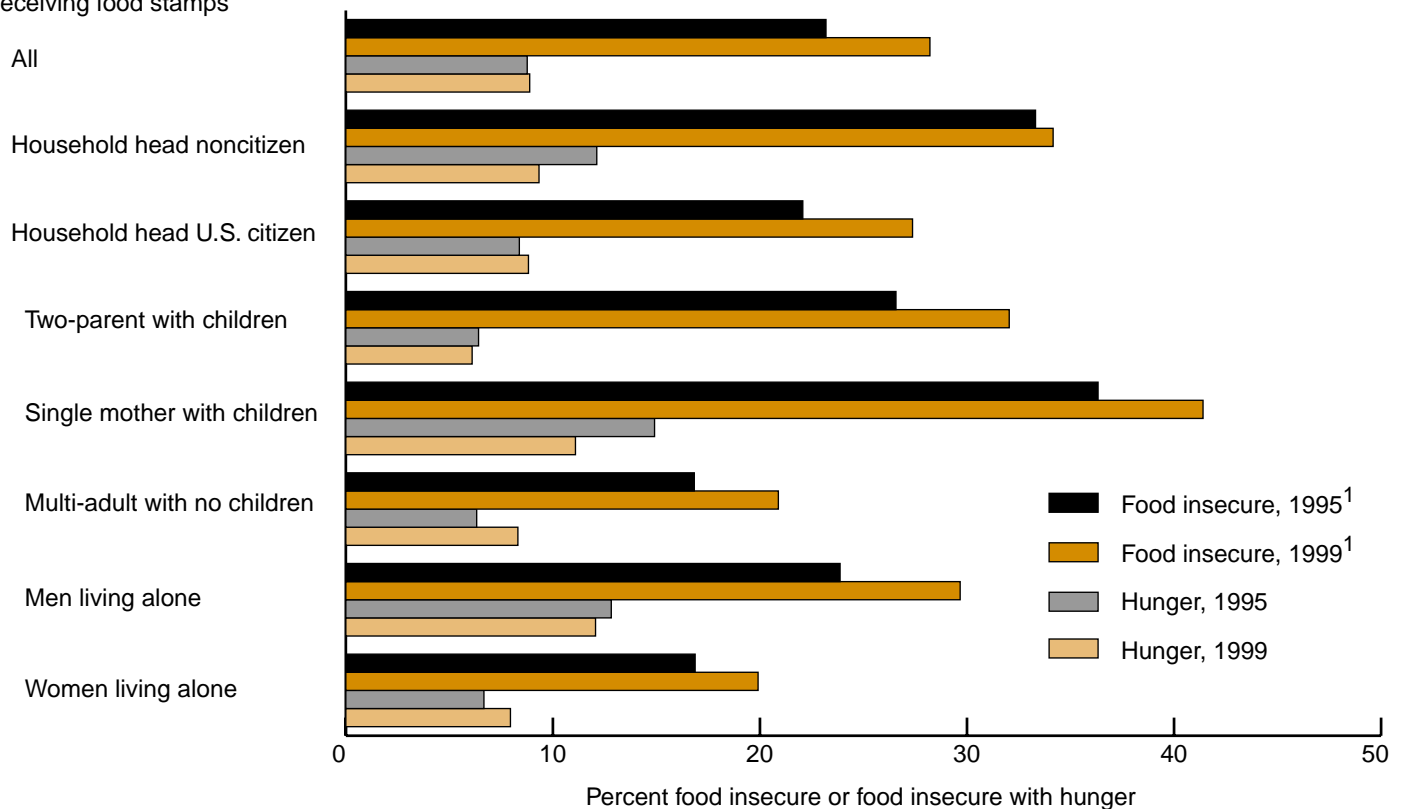
than half from 1995 to 1999. Nevertheless, the lack of any significant increase in food insecurity among noncitizens indicates that the decline in their use of food stamps did not increase their overall level of food hardship. It may be that the improving economy especially benefited noncitizens, who historically have had a stronger attachment to the labor force than citizens with similar characteristics. Further research is needed to understand the important relationships among food stamp use, food security, and employment.

The prevalence of hunger—the more extreme level of food insecurity—among low-income households declined by 1.2 percentage

Figure 1

Between 1995 and 1999, Food Insecurity Increased for Low-Income Households That Did Not Receive Food Stamps

Low-income households not receiving food stamps



¹Food insecure category includes food insecure with and without hunger.

Source: Calculated by ERS using data from CPS Food Security Supplements, April 1995 and April 1999.

points from 1995 to 1999 (table 2). Within this low-income category, households not receiving food stamps registered almost no change in the hunger rate. Across demographic categories, changes in the hunger rate were less consistent than changes in overall food insecurity. The largest, and only statistically significant, change in the hunger rate among low-income, non-food-stamp, households was a decline of 3.8 percentage points for single-mother families with children. The combination of widespread increases in food insecurity but little or no change (or even declines) in hunger among low-income, non-food-stamp households suggests that the most needy households—those facing hunger without food assistance—continued to receive food stamps. Even though the prevalence of hunger did not rise among low-income households not receiving food stamps, 8.9 percent of these households did report

hunger at times during the year because they could not afford enough food.

Food Security of Households Receiving Food Stamps Unchanged

Households participating in the Food Stamp Program registered much higher rates of food insecurity and hunger than nonparticipating low-income households. This reflects the greater propensity of households that feel in need of food to apply for food stamps. Households that received food stamps, however, registered almost no change in the measured prevalence of food insecurity or hunger between 1995 and 1999. If the households leaving the Food Stamp Program had been only, or mostly, the less needy households, then a larger share of more needy households would have been left in the

program, and the rate of food insecurity would have increased among food stamp recipients. It appears, therefore, that the shift away from food stamp use occurred somewhat evenly across the “need” spectrum, not just among the least needy households. Analysis of the incomes of low-income households receiving food stamps also points to this conclusion. The average income of these households and their distribution across the income range remained essentially unchanged during the study period.

The one notable exception to this pattern is low-income women who lived alone and received food stamps. For reasons that are not yet clear, both food insecurity and hunger increased dramatically for this category. It is possible that the shift away from food stamp use by women living alone occurred mostly among less needy women, leaving the more needy as continuing food stamp recipients. Also, changes in the food stamp program, such as the reduction in food stamp benefit levels or the restrictions on receipt for “unemployed able-bodied adults without dependents,” may have affected women living alone more than other households.

These findings do not negate the important role of the strong economy in the food stamp caseload decline. Rather, they demonstrate that other factors were also at work—factors that reduced use of food stamps by some households that still felt in need of more food than they were getting. The sharp drop in use of food stamps by low-income households accounted for more than half of the overall decline in the food stamp caseload. The substantial increase in food insecurity among low-income households that did not receive food stamps indicates that low-income households were generally less aware of their eligibility for food stamps or found it more difficult or less socially acceptable to get food stamps in



Two-parent families with children were among household types whose use of food stamps dropped sharply between 1995 and 1999.

Credit: EyeWire.

1999 than in 1995. The lack of a corresponding increase in hunger among these households suggests that use of food stamps by the most vulnerable households remained about constant.

References

- Andrews, Margaret, Mark Nord, Gary Bickel, and Steven Carlson. *Household Food Security in the United States, 1999*, Food Assistance and Nutrition Research Report No. 8. U.S. Department of Agriculture, Economic Research Service, 2000.
- Bickel, Gary, Mark Nord, Cristofer Price, William Hamilton, and John Cook. *Guide to Measuring Household Food Security—Revised 2000*. U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis, Nutrition, and Evaluation, 2000.
- Genser, Jenny. "Who Is Leaving the Food Stamp Program? An Analysis of Caseload Changes from 1994 to 1998." Paper presented at the annual conference of the National Association of Welfare Research and Statistics, August 1999.
- Gundersen, Craig, and Victor Oliveira. "The Food Stamp Program and Food Insufficiency," *American Journal of Agricultural Economics*, forthcoming.
- Hamilton, William L., John T. Cook, William W. Thompson, Lawrence F. Buron, Edward A. Frongillo, Jr., Christine M. Olson, and Cheryl A. Wehler. *Household Food Security in the United States in 1995: Summary Report of the Food Security Measurement Project*. U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis, Nutrition, and Evaluation, 1997.
- Hamilton, William L., John T. Cook, William W. Thompson, Lawrence F. Buron, Edward A. Frongillo, Jr., Christine M. Olson, and Cheryl A. Wehler. *Household Food Security in the United States in 1995: Technical Report*. U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis, Nutrition, and Evaluation, 1997.
- Zedlewski, Sheila R., and Sarah Brauner. "Declines in Food Stamp and Welfare Participation: Is There a Connection?" Discussion paper 99-13. Washington, DC: Urban Institute, 1999. ■

Community Food Security Programs Improve Food Access

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The Federal nutrition assistance safety net represents the first line of defense in boosting the food purchasing power and improving the nutritional status of low-income households in the United States. In fiscal 2000, USDA spent an estimated \$32.5 billion on food assistance programs, over half of its annual budget. Community-based initiatives, such as farmers markets and community gardens, can boost the effectiveness of USDA nutrition assistance and education programs by increasing the availability of high-quality and affordable food in a community. Such initiatives also support rural communities by strengthening the traditional ties that exist between farmers and urban consumers.

Following congressional passage of the Community Food Security Act of 1996, USDA launched the Community Food Security Initiative in February 1999. This nationwide initiative seeks to forge partnerships between USDA and local communities to build local food systems, decrease need, and improve nutrition.

Community food security is a relatively new concept with roots in a variety of disciplines, including

community nutrition, nutrition education, public health, sustainable agriculture, and community development. As such, community food security has no universally accepted definition.

Researchers at Tufts University view community food security as an expansion of the concept of household food security, which focuses on the ability of a household to acquire enough food for an active, healthy life. Community food security focuses on the underlying social, economic, and institutional factors within a community that affect the quantity, quality, and affordability of food.

Researchers at Rutgers University see community food security as a process in which community-based programs work in tandem with a strong Federal nutrition safety net and emergency food assistance programs to move people from poverty to self-sufficiency and food security (see box). This article examines a variety of community food security programs, looking at their scope, their limitations, and their successes.

Foodstore Access Affects Food Affordability and Quality

Various studies suggest that low-income households, particularly those in rural areas and poor central

cities, have less access to reasonably priced, high-quality food than other households. For example, a 1997 study by USDA's Economic Research Service found that supermarket prices were about 10 percent lower, nationwide, on average, compared with grocery stores, convenience stores, and grocery/gas combinations predominant in rural areas and central cities where a greater proportion of the poor live.

Supermarkets, which are more prevalent in suburban areas, can charge lower prices, partly due to their lower operating costs and larger item selection, including store label and generic items. This finding has particular implications for low-income households because households with access to supermarkets can often lower total food costs by selecting items within a food category, such as larger package sizes or store brands, that are more economical.

A 1997 study by USDA's Food and Nutrition Service (FNS) found that, nationwide, 77 percent of food stamps were redeemed at supermarkets. However, supermarkets accounted for 59 percent of all food stamp redemptions in rural areas and 64 percent of redemptions in the poorest central cities (those with more than 20 percent of the population living in poverty) (fig. 1). The remaining food stamps were spent in grocery stores, convenience

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Community Food Security Programs Benefit Farmers and Consumers

Community food security programs encompass a wide variety of community-based efforts to increase the quantity, quality, and affordability of food for local residents, especially for low-income residents. Some of these programs improve food access for low-income households and support rural communities by strengthening traditional ties between farmers and urban consumers. Examples of community food security programs include the following:

Food stamp outreach programs help increase the number of eligible

households that participate in the Food Stamp Program and reduce dependence on emergency food assistance providers.

Farmers markets boost incomes of small, local farmers and increase consumer access to fresh produce.

Community gardens help public housing residents and other low-income consumers supplement their diets with home-grown produce.

Food buying cooperatives help families save money by pooling food purchases. *Community-supported agriculture programs* help

provide small farmers with economic stability and consumers with high-quality produce, often at below-retail prices.

Farm-to-school initiatives help local farmers sell fresh fruits and vegetables directly to school meal programs.

Food recovery programs rescue wholesome food that would otherwise be thrown away and provide the food to groups that serve the needy.

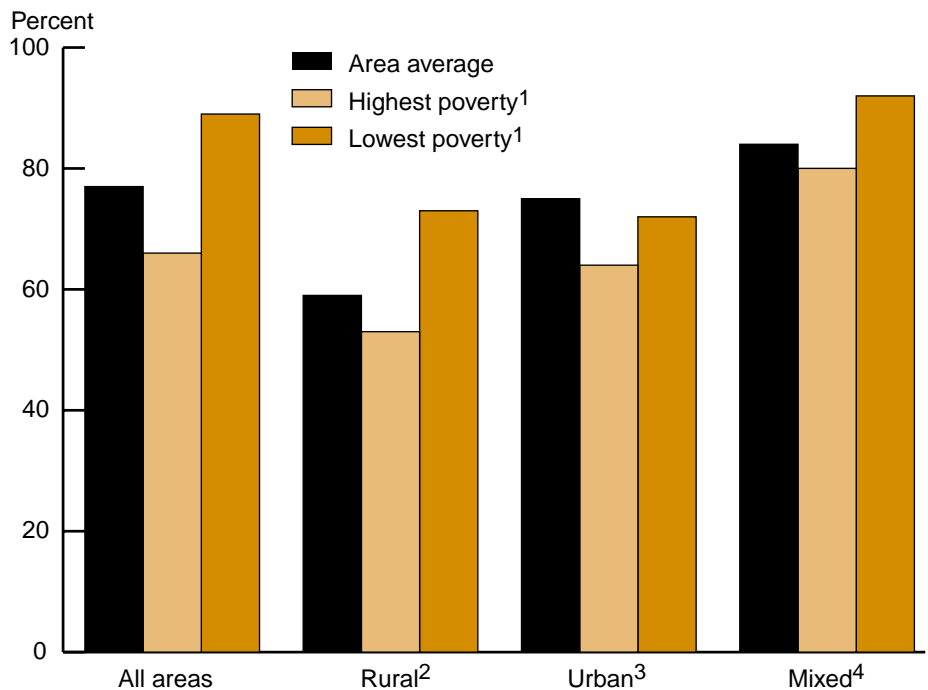
stores, and grocery sections of gas stations. Convenience stores and grocery/gas combinations typically offer poor selection and higher prices, compared with supermarkets and grocery stores.

A 1997 FNS study of shopping habits of food stamp households found that many households, especially African-American households, made just one major shopping trip per month, usually right after receiving food stamps. Food stamp households made interim trips only to replace perishable items. Fewer shopping trips per month can mean reduced access and higher prices for perishable items like dairy products and fresh fruits and vegetables as households purchase these items in smaller, more expensive stores closer to home.

Food Cooperatives Can Stretch Food Dollars

Food cooperatives are customer-owned entities that are often formed to meet a need not being met by a traditional retail store or to provide an alternative source of food in areas poorly served by retail markets. There are two major types of food cooperatives: buying clubs (or pre-order cooperatives) and retail

Figure 1
Share of Food Stamp Redemptions in Supermarkets Varies by Location



¹Zip codes were divided into poverty quintiles. The highest poverty zip codes are those in which more than 20 percent of the population is below the poverty level. The median poverty rate in the lowest poverty zip codes varied by metropolitan status. Median poverty rates in the lowest poverty quintiles were 6.9 percent (rural), 2.9 percent (urban), and 4.2 percent (mixed).

²Rural areas = Zip codes with less than 10 percent urban population.

³Urban areas = Urban population exceeds 90 percent

⁴Mixed areas = Urban population ranges from 10 percent to 90 percent.

Source: USDA, Food and Nutrition Service, Authorized Retailers' Characteristics Study, February 1997.



Community gardens are a way for local groups to improve households' access to fresh produce. Volunteer staff members with the Evangelical Lutheran Church in America (ELCA) grow vegetables in kiddie pools on the roof of the parking garage at ELCA's offices in Chicago, IL. The vegetables are donated to local food pantries.

Credit: Photographs courtesy of the Evangelical Lutheran Church in America.



security. Farmers markets are one of the leading sources of direct farm marketing in the United States. USDA reports the number of farmers markets in the United States increased 63 percent in the past 6 years, from 1,755 in 1994 to 2,863 in 2000. A 1996 USDA study estimated national fruit and vegetable sales through farmers markets and other direct marketing outlets at \$1.1 billion.

A farmers market brings together producers and consumers at the same place and time, usually once or twice a week, typically in an outdoor setting. The markets range in size from a small community-based market to a large market run by a farmer organization and serving several thousand shoppers. All farmers markets sell fresh fruits and vegetables, but markets can also sell cheese, meat and poultry, fresh flowers, baked goods, honey, maple syrup, jellies and relishes, and crafts.

Data from USDA's NFSPS suggest that farmers markets account for a relatively small share of total food purchases by low-income households. Less than one-quarter of food stamp participants reported shopping at a farmers market, while one-third shopped at a produce stand. Households that were eligible for food stamps but did not participate in the program and households that were nearly eligible for food stamps were somewhat more likely to use these outlets as food sources.

In 1998, the latest year for which data are available, farmers markets accounted for just 0.02 percent of food stamp redemptions nationwide, followed by produce stands at 0.01 percent. Produce routes, or mobile produce providers who sell products from the back of trucks, accounted for 0.31 percent of the redemption total.

Between 1994 and 1998, food stamp participation declined and total redemptions decreased from \$21.8 billion to \$16.8 billion. Food

cooperative food stores. In buying clubs, members pool their resources (money, labor, purchasing, and distribution) to buy food in bulk quantities at reduced cost. Retail cooperative food stores maintain an inventory of food and nonfood items similar to a regular retail store. Members typically have some control over the types and quality of food available and often receive price discounts in return for a set number of work hours.

According to National Cooperative Business Association data, the United States has approximately 500 retail cooperative food stores where people can walk in and buy food. However, of 2,400 food stamp recipients interviewed for the 1996 National Food Stamp Program Survey (NFSPS), fewer than 3 percent reported shopping at a food cooperative. The relatively low success

rates for operating food cooperatives in low-income areas—due to lack of community support, poor access to working capital, and Federal regulations that require cooperatives to offer a full range of staple foods in order to qualify as an authorized food stamp retailer—may limit access to food cooperatives among food stamp recipients and other low-income households.

Farmers Markets Dominate Direct Agricultural Marketing

Direct farm marketing, including farmers markets, community-supported agriculture programs, pick-your-own farms, roadside stands, and direct sales of farm products to schools and other institutions, is a key component of community food

stamp redemptions dropped more sharply from \$6.4 million to \$3.8 million at farmers markets, from \$134 million to \$58 million at produce stands, and from \$11.9 million to \$2.6 million on produce routes, as many States adopted electronic benefits transfer (EBT) systems for food stamps. During the same period, redemptions at supermarkets, grocery stores, and other food stores decreased at about the same rate as the total decline. Most farmers markets, produce stands, and produce routes operate in environments in which the electric power and land-line telephone access required for EBT redemptions is not readily available. Federal welfare reform legislation enacted in 1996 requires that all States implement Food Stamp Program EBT systems before October 2002, unless a State receives a special waiver from USDA. USDA is currently working with State and local officials to improve EBT access in direct marketing outlets.

Direct farm marketers in low-income areas may face many of the same constraints faced by traditional retailers in such neighborhoods. Low-volume sales, concerns about crime, limited space for parking, competition from produce routes, and competition from local retail stores that may offer produce items as "loss leaders" can limit farmer participation in farmers markets in low-income areas or increase prices beyond the reach of many low-income consumers. Also, in areas with large numbers of food stamp recipients, the tendency of recipients to concentrate purchases early in the month when benefits are received may limit purchases at farmers markets. In neighborhoods with large immigrant populations, farmers may have difficulty supplying foods with specific ethnic appeal, such as tropical fruits, that are typically not produced in the United States.

Finally, farmers markets are not equally available in all geographic

areas. Nationwide, seven States—California, Illinois, Iowa, Kentucky, Massachusetts, Missouri, and New York—account for 41 percent of the farmers markets, compared with 30 percent of the total population.

Community-Supported Agriculture Increases in Popularity

Community-supported agriculture (CSA) is a relatively new direct marketing tool that is seen as an alternative food source for low-income consumers with limited access to conventional food sources. In a CSA program, a group of consumers (shareholders) purchase shares at the beginning of the growing season to buy a portion of the farm's crop that year. This arrangement gives growers upfront cash to finance their operation and higher prices for produce, since the middleman has been eliminated. Shareholders receive a weekly box or bag of fresh produce, typically organically grown, which is usually harvested no more than 1 day prior to delivery.

The Center for Agroecology and Sustainable Food Systems at the University of California, Santa Cruz, states CSA programs take many forms. Shares are usually intended to feed two to four people at an average price of \$10-\$30 per share for 10-25 weeks, depending on the geographic area, or between \$100 and \$750 per season. Some CSAs allow members to purchase shares on a monthly or quarterly basis. Delivery options vary from programs in which members must pick up their food at the farm itself to those in which food is delivered to centralized pickup sites around a community. The typical CSA offers a mix of between 8 and 12 types of vegetables, fruits, and herbs per week per shareholder.

A 1995 study of three CSA programs in Massachusetts compared

CSA prices with retail foodstore prices in the same area. The study found that comparable produce purchased in a conventional supermarket cost 60-150 percent more than if purchased through a CSA.

Despite potential cost savings and other benefits, participation in CSA programs can be difficult for low-income consumers. Many low-income households may not have the resources to pay a lump-sum fee at the beginning of a growing season. Food stamp recipients are not allowed to use food stamps to purchase CSA shares based on the notion that recipients are speculating on the outcome of a crop rather than actually purchasing food. Some CSA programs are reaching out to low-income consumers with programs to subsidize shares for households that are unable to afford the full price (see "Organic Marketing Features Fresh Foods and Direct Exchange" elsewhere in this issue).

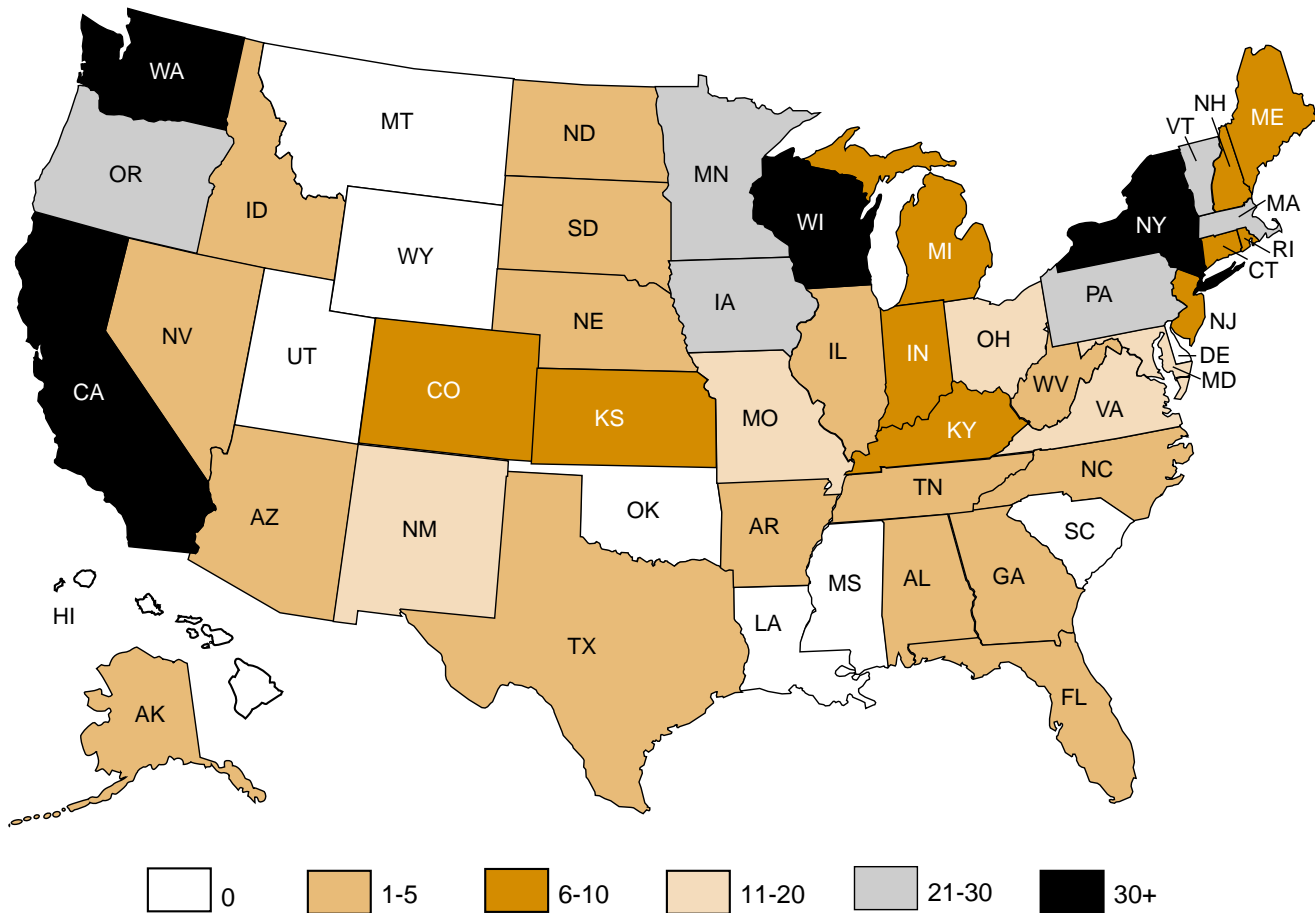
USDA reported that about 550 CSA programs operated in the United States in 2000. CSA programs, however, were unevenly distributed nationwide. Ten States—California, Iowa, Massachusetts, Minnesota, New York, Oregon, Pennsylvania, Vermont, Washington, and Wisconsin—accounted for nearly two-thirds of all CSA programs in the United States. More than one-third of States had fewer than six programs (fig. 2).

Farm-to-School Initiatives Can Boost Local Farm Income

Farm-to-school initiatives encourage small farmers to sell fresh produce to schools and encourage schools to buy fresh produce from small farmers, usually from the local community. According to USDA's Small Farms/School Meals Initiative Guide, farm-to-school programs benefit both students and farmers by providing fresh, nutritious pro-

Figure 2

California, New York, Washington, and Wisconsin Rank Highest in Number of Community-Supported Agriculture Programs



duce for school meals and new marketing outlets for small and limited-resource farmers. Schools may be able to lower food costs by purchasing fresh fruits and vegetables from local producers while students are provided with the opportunity to learn where their food comes from, interact with farmers who grow their food, and learn about the importance of fruits and vegetables in a healthful diet.

Such programs, however, are not without limitations. Both farmers and schools face a number of obstacles in successfully integrating locally grown produce into school meal programs. At times, these

obstacles are quite formidable. Farmers must prove that they can supply the quantity, variety, quality, and selection of produce that schools need and deliver it in a timely and dependable manner. School districts often contract to purchase foods for every school in their district at wholesale prices from large foodservice contractors. District procurement rules may limit the ability of individual foodservice managers to contract with individual suppliers, such as local farmers. Also, some schools or school districts contract with a foodservice vendor or fast food company to supply prepared meal options and may

have trouble integrating locally grown foods into such preset menu arrangements.

The formation of farmer cooperatives may enable small farm operators to more effectively compete with more traditional wholesale food vendors in the school foodservice market. For example, farmers participating in a USDA pilot farm-to-school project in north Florida during the 1997-98 and 1998-99 school years formed a successful marketing cooperative to sell fresh leafy greens to Florida school districts.

Community Gardening Improves Access to Fresh Produce

Many communities have sought to improve households' access to fresh fruits and vegetables through community gardening. The American Community Gardening Association (ACGA), a national nonprofit organization that supports the development of community gardens, defines a community garden as any place where two or more people garden together. Community gardens are commonly established on vacant lots in central cities where land for home gardens is limited. They can include school-based gardens, therapeutic gardens for seniors and disabled people, and youth training gardens.

It is difficult to determine the precise number of community gardens in the United States due to their local nature and lack of formal organizational structure. ACGA estimates a total of 150,000 community gardens in the United States, with New York City leading the list (table 1).

Few studies have quantified the impact of community gardens on food and nutrient intakes by low-income households. A 1991 study undertaken by Pennsylvania State University examined fruit and vegetable consumption among 144 community gardeners and a control group of 67 nongardeners throughout the city of Philadelphia. The study found that community gardeners consumed several vegetables more often than their nongardening counterparts, including cruciferous vegetables like cabbage, cauliflower, and brussels sprouts and dark-green leafy vegetables like kale, broccoli, pak choi, and other Chinese vegetables. Cruciferous and dark-green leafy vegetables are among the least consumed vegetables in the United States. The study also found that community gardeners were less likely to consume dairy products,

citrus fruits, baked goods, and soft drinks than nongardeners.

Community gardeners, however, face a number of constraints that can affect participation by low-income households. Low-income households may hesitate to spend money from their limited budgets on gardening inputs when the outcome of a crop is uncertain. Basic needs for a successful community garden include good soil, a reliable in-ground water system that meets all appropriate city codes, and fencing. Community gardens over 5,000 square feet also require a delivery area, compost area, and a convenient water source.

Establishing and maintaining a community garden costs an estimated \$1 per square foot per year over 5 years for soil, seeds, soil testing, basic turkey wire fence, and initial cleanup, assuming volunteer labor and a free water source. An average 10 x 20 foot plot could cost \$200 per year. Many community gardens attempt to minimize input costs for individual gardens by

obtaining donated supplies, applying for startup grants, and sharing costs for common-area items like fencing and cleanup.

The value of crops produced in a community garden depends on climate, experience of the gardeners themselves, and quality and timing of inputs, such as compost, water, and sunlight. According to a formula developed by USDA and the National Gardening Association, a garden plot of 10 x 20 feet can yield between \$70 and \$540 worth of vegetables per season, depending on crop density, crop quality, and length of season. The Georgia Department of Agriculture estimated the average value of the yield for such a 10 x 20 plot at \$600 per season.

Lack of secure land tenure can also create uncertainty in the ability of community gardens to serve as a reliable food source for low-income households. Community gardens are often seen as a temporary use for vacant and city-owned land that is later developed by city governments eager to expand their tax base. The ACGA's 1998 National Community Gardening Survey found that only 5.3 percent of gardens in 38 cities were in permanent ownership status.

A 1999 study of rural community gardeners in 13 States by the Tufts University Center on Hunger and Poverty found that travel to community gardens in rural areas may be difficult, costly, and time consuming, and that volunteer labor was subject to high turnover. Some rural areas provide incentives for residents to garden on their personal property, including technical assistance, free seeds, tilling, and training plots to improve food-growing skills. A Vermont project paired local experienced gardeners with others interested in gardening. A Wisconsin group established community gardens in trailer parks and low-income apartment complexes.

Table 1
New York City Leads the Nation in Community Gardening

City	Community gardens in selected cities, 1996
New York, NY	1,906
Newark, NJ	1,318
Philadelphia, PA	1,135
Minneapolis, MN	536
Boston, MA	148
San Francisco, CA	113
Pittsburgh, PA	108
Washington, DC	58
Seattle, WA	44
New Orleans, LA	43
Madison, WI	37
Portland, OR	23
Tucson, AZ	5
Durham, NC	4
Santa Barbara, CA	3

Source: National Community Gardening Survey, American Community Gardening Association, 1998.

USDA Toolkits Provide Communities With Technical Assistance

Currently, community food security programs are unevenly represented across the Nation. Areas underserved include the Western States of Wyoming, Montana, Idaho, and Utah, and the lower Mississippi Delta States of Louisiana, Arkansas, and Mississippi. The lower Mississippi region is among the poorest in the Nation. By contrast, community food security programs enjoy strong support in a handful of States, including California, Iowa, Massachusetts, Minnesota, New York, Oregon, Pennsylvania, Washington, and Vermont.

The recently released Food and Nutrition Service publication *A National Nutrition Safety Net: Tools for Community Food Security* contains a set of checklists to help communities identify barriers people may face in fully participating in USDA nutrition assistance programs. The publication also instructs communities on how to improve nutrition assistance infrastructures.

A forthcoming USDA community food security toolkit will provide a standardized set of tools for measuring various indicators of community food security, including food resource accessibility, food availability, food affordability, and local agricultural resources. The toolkit will provide communities with an important first step in identifying the resources needed to most effectively meet the food needs of their citizens.

References

American Community Gardening Association. *National Community Gardening Survey*. 1998.

Anderson, Molly D., and John T. Cook. "Community Food Security: Practice in Need of Theory?" *Agriculture and Human Values*, Vol. 16, 1999, pp. 141-150.

Blair, Dorothy, Carol C. Giesecke, and Sandra Sherman. "A Dietary, Social, and Economic Evaluation of the Philadelphia Urban Gardening Project," *Journal of Nutrition Education*, Vol. 23, 1991, pp. 161-167.

Bradbard, Steven, Eileen F. Michaels, Kathryn Fleming, and Marci Campbell. *Understanding the Food Choices of Low Income Families*. U.S. Department of Agriculture, Food and Consumer Service, Office of Analysis and Evaluation, May 30, 1997.

Burns, Arthur, and Denny N. Johnson. *Farmers' Market Survey Report*. U.S. Department of Agriculture, Agricultural Marketing Service, Transportation and Marketing Division, Wholesale and Alternative Markets Program, July 1996.

Cooley, Jack, and Daniel Lass. "Consumer Benefits from Community Supported Agriculture Membership," *Review of Agricultural Economics*, Vol. 20, No. 1, Spring/Summer 1998, pp. 227-237.

Gale, Fred. "Direct Farm Marketing as a Rural Development Tool," *Rural Development Perspectives*, Vol. 12, No. 2, February 1997, U.S. Department of Agriculture, Economic Research Service.

Hamm, Michael. "Community Food Security and Anti-Hunger Advocacy: Similar Goals in Search

of Unity," *Community Food Security News*, Summer 1999, Community Food Security Coalition, Venice, CA.

Kaufman, Phillip R., James M. MacDonald, Steven M. Lutz, and David M. Smallwood. *Do the Poor Pay More for Food? Item Selection and Price Differences Affect Low-Income Household Food Costs*, Agricultural Economic Report No. 759. U.S. Department of Agriculture, Economic Research Service, November 1997.

Mantovani, Richard E., Lynn Daft, Theodore F. Macaluso, James Welsh, and Katherine Hoffman. *Authorized Food Retailer Characteristics Study, Technical Report IV: Authorized Food Retailers' Characteristics and Access Study*. U.S. Department of Agriculture, Food and Consumer Service, Office of Analysis and Evaluation, February 1997.

Ohls, James C., Michael Ponza, Lorenzo Moreno, Amy Zambrowski, and Rhoda Cohen. *Food Stamp Participants' Access to Food Retailers, Final Report*. U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis and Evaluation, July 1999.

Sullivan, Ashley. *Community Gardening in Rural Regions: Enhancing Food Security and Nutrition*. Boston, MA: Tufts University, School of Nutrition and Poverty, Center on Hunger and Poverty, December 1999.

U.S. Department of Agriculture, Economic Research Service. *USDA Community Food Security Assessment Toolkit*, forthcoming.

U.S. Department of Agriculture, Food and Nutrition Service. *The National Nutrition Safety Net: Tools for Community Food Security*, Food and Nutrition-314, January 2000. ■

WIC Increases the Nutrient Intake of Children

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USDA's Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) is designed to improve the health of low-income, nutritionally at-risk infants; children; and pregnant, postpartum, and breast-feeding women by providing supplemental food, nutrition education, and health care referrals. WIC is based on the premise that early intervention during critical times of growth and development can help prevent medical and developmental problems later in life.

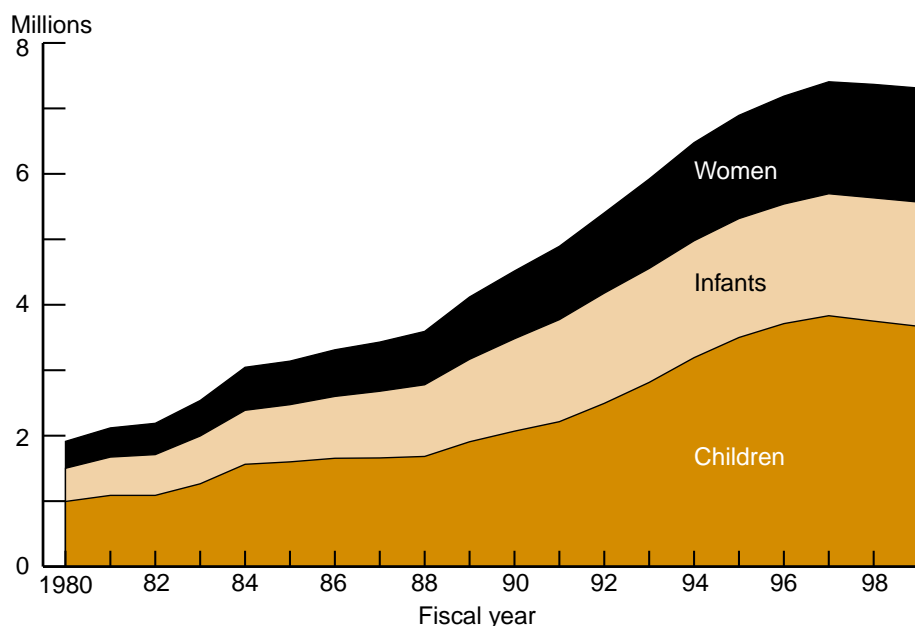
WIC is a central component of the Nation's food assistance system. In fiscal 1999, WIC served an average of 7.3 million participants per month, half of whom were children. About half of all infants and almost one-quarter of all children 1-4 years of age in the United States now participate in WIC. Federal program costs totaled \$3.9 billion in fiscal 1999, making WIC the country's third-largest food assistance program in terms of total expenditures, trailing only the Food Stamp Program (\$17.7 billion) and the National School Lunch Program (\$6 billion). WIC accounts for almost 12 percent of total Federal Government expenditures for food and nutrition assistance.

The number of women, infants, and children who can participate in WIC each year depends on the annual appropriation by Congress and the cost of operating the program. Funding for WIC increased substantially during most of the 1990's, which allowed the program to serve more people. Between fiscal 1990 and fiscal 1997, the year in which WIC participation peaked at an average 7.4 million participants per month, the number of WIC participants increased almost 64 percent (fig. 1). Children experienced the greatest increase (85 percent), followed by women (65 percent), and

infants (32 percent). In recent years, WIC has been fully funded—all eligible people who applied to the program have been able to participate.

The increase in congressional funding during the past decade was fueled largely by evaluations of the program that showed WIC to be successful and cost-effective. For example, an influential 1990 five-State study concluded that every \$1 WIC spent on pregnant women saved up to \$3.13 in Medicaid costs over the first 60 days after birth. The study also found that a woman's participation in WIC while pregnant was associated with increased

Figure 1
Participation in WIC Increased During Most of the 1990's



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birthweight, less chance of a preterm birth, and a longer gestational period.

Most research on the effectiveness of WIC has focused on birth outcomes, while relatively few studies have examined the program's effect on children, despite the fact that children now comprise over half of all participants in WIC. The few WIC studies that focused on children were based on data collected before the dramatic expansion of the child component of the WIC program during the 1990's. Therefore, the results of these earlier studies may not be applicable to the current situation.

To address this lack of recent research on children, USDA's Economic Research Service (ERS) recently undertook a study that examined WIC's effect on the nutrient intake of children participating in the program. An underlying assumption was that improved diets will lead to better health of children in the long run. The study found that participation in WIC leads to increased intake of iron, vitamin B₆, and folate.

Overview of the WIC Program

The WIC program, administered by USDA's Food and Nutrition Service, was established in 1972 and made permanent in 1974. WIC operates in all 50 States and the District of Columbia, as well as in Guam, the U.S. Virgin Islands, American Samoa, the Commonwealth of Puerto Rico, and on 33 Indian reservations. WIC limits eligibility to pregnant women, women up to 6 months postpartum who are not breastfeeding, breastfeeding women up to 12 months postpartum, infants up to 1 year of age, and children up to their fifth birthday.

To be eligible, a person's family income must fall below 185 percent of the poverty guideline for that family size. Persons who participate

in the Food Stamp Program, Medicaid, or Temporary Assistance for Needy Families (TANF) automatically meet the income eligibility criteria (the TANF program replaced Aid to Families With Dependent Children (AFDC) in 1997). WIC recipients must also be individually determined to be at "nutritional risk" by a health professional (see box).

Most WIC recipients receive checks, vouchers, or electronic benefits transfer (EBT) cards each month that allow them to purchase a monthly food package designed to supplement their diets. The checks, vouchers, or EBT cards are redeemable at authorized retail food stores. The WIC food package is not intended to meet the total nutritional needs of the participants.

Rather, WIC educates participants on ways to obtain the balance of the necessary nutrients from other food sources. WIC provides foods that are high in five target nutrients—protein, calcium, iron, and vitamins A and C. These nutrients are frequently lacking in the diets of low-income women, infants, and children, which may result in adverse health consequences. The food package for children 1-4 years old consists of milk or cheese, iron-fortified cereal, 100-percent fruit and/or vegetable juice, eggs, and peanut butter or dry beans/peas (children with special dietary needs may receive a different food package). WIC also offers recipients nutrition education as well as referrals to other social services and needed health care, such as immunizations.

What Constitutes "Nutritional Risk"?

To participate in the WIC program, all applicants must demonstrate nutritional risk as determined by a health professional, such as a physician, nutritionist, or nurse. The nutritional risk assessment is free to all applicants and, at a minimum, includes a height and weight assessment and a hematological test (blood test) for anemia (hematological tests are not required, but are permitted, for infants less than 9 months of age). Federal regulations recognize five major types of nutritional risk for WIC eligibility: (1) detrimental or abnormal nutritional conditions detectable by biochemical or anthropometric measurements (such as anemia and inadequate growth in children); (2) other documented nutritionally related medical conditions (such as nutrient deficiency diseases and food allergies); (3) dietary deficiencies that impair or endanger health (such as highly restrictive diets, inadequate diets, and inappropriate infant feeding); (4) conditions that directly affect the nutritional health of a person, including maternal smoking; and (5) conditions that predispose

persons to inadequate nutritional patterns or nutritionally related medical conditions, including, but not limited to, homelessness and migrancy.

When funds are not sufficient to serve all eligible persons, WIC uses a seven-point priority system to ensure that those persons at the greatest nutritional risk receive benefits. In general, priority is given to persons demonstrating medically based nutritional risks over dietary-based nutritional risks, to pregnant and breastfeeding women and infants over children, and to children over postpartum women.

The nutritional risks reported most frequently for WIC women in 1996 were general obstetrical risks and inadequate or inappropriate nutrient intake. Three-quarters of WIC infants were at risk because their mothers were WIC-eligible or because their mothers were at risk during pregnancy. For children, inappropriate or inadequate nutrient intake and anthropometric risks (for example, low weight for height) were the predominant risks reported.

Data Set Reflects More Children in WIC During the 1990's

The ERS study used data from the 1994-96 Continuing Survey of Food Intake by Individuals (CSFII) conducted by USDA's Agricultural Research Service. Survey respondents were interviewed in person on 2 nonconsecutive days and asked to recall all the food and beverages they had consumed in the last 24 hours. Adult proxies (usually the persons preparing the meals) provided the data for children. Respondents described both the types and the amounts of food and beverages consumed, and a nutrient database converted this information into total nutrient intake. Because the surveys were conducted at the tail end of the program's growth period, the data are comparable to the current situation in which the WIC program is more widely available to children.

Only children 1-4 years of age who had 2 days of data were included in the ERS analyses. Because the CSFII data set did not allow ERS researchers to determine which children were at nutritional risk, WIC eligibility for children not participating in the program was determined by annual household income. Past research suggests that WIC income-eligibility estimates using 185 percent of the poverty guideline may understate actual income eligibility for WIC. To ensure that we did not exclude eligible children, we included all children in households with annual incomes at or below 200 percent of the poverty guideline. Because they are categorically eligible, we also included children who were authorized to receive food stamps or who lived in households that received income from AFDC. These criteria follow the convention used in earlier work on WIC's impact on nutrient intake.

The study focused on eight nutrients, the five targeted by the WIC

program, as well as folate, vitamin B₆, and zinc, additional nutrients of concern for some low-income populations. In addition, the study examined food energy to determine if changes in nutrient intake were due to changes in nutrient density or to changes in energy intake of WIC recipients. In other words, were WIC recipients eating more food or food that was more nutrient dense?

Study Compares WIC Children With Eligible Nonparticipants

The ERS study determined the effect of WIC participation on children by comparing the nutrient intake of children participating in WIC with the intake of income-eligible children not participating in the program. To make this comparison, researchers must carefully consider both observable and unobservable differences between the groups. For example, an observable difference between WIC participants and eligible nonparticipants is household income. WIC participants may have lower household incomes than eligible nonparticipants, and a lack of money could restrict their purchase of nutritious foods. In the absence of WIC, children now on WIC may have had significantly lower nutrient intake than the group of income-eligible nonparticipants.

To control for observable differences between participants and nonparticipants, we used a statistical model employing multiple regression techniques. The model included a number of socioeconomic characteristics thought to influence nutrient intake as independent variables, including the main variable of interest—whether or not the child participated in the WIC program. Other independent variables included the age, sex, and race/ethnicity of the child, and household characteristics, such as annual income, homeownership,



Children participating in WIC showed significant increases in intake of key nutrients, including iron, vitamin B₆, and folate.

Credit: USDA.

cash assets, geographic region, and years of schooling of the household head. A variable based on the year of the survey accounted for the increase in the participation of children in WIC due partly to increased congressional funding between 1994 and 1996.

While observable differences can be controlled for with statistical methods, unobservable differences between WIC recipients and income-eligible nonparticipants can be a problem when these unobservable differences influence nutrient intake. These unobservable differences, the result of either self-selection or rationing, may bias the estimates of WIC's effect on nutrient intake. These biases may be upward, that is, overstating WIC's effectiveness, or downward, that is, understating WIC's effect on nutrient intakes. Self-selection bias may occur if parents who are more concerned and/or knowledgeable about their child's nutrition choose to enroll their child in WIC to a greater degree than less nutritionally aware parents. Even in the absence of WIC, children with more concerned and motivated parents would probably demonstrate higher nutrient intakes.

Because the data do not allow us to observe differences in motivation and awareness between participants and nonparticipants, we controlled for self-selection bias by including only eligible children from households in which a pregnant woman, a breastfeeding or postpartum mother, or an infant was participating in WIC. As these households already participate in WIC, the parents (or guardians) presumably are aware of the program and are concerned and motivated to improve their family's nutrition. Thus, the model controls for self-selection bias.

While some eligible people may self-select out of WIC, other applicants who would like to receive WIC benefits may not be able to participate if funds are not sufficient to serve all applicants. If this rationing occurs, WIC caseworkers may limit slots to children who are judged to be most at nutritional risk. Such rationing may understate WIC's effectiveness insofar as these higher risk children have poorer nutritional status than the group they are compared with in the analysis—eligible children rationed out of the program. Although the model does not control for the biases resulting from rationing, these biases are likely to be downward and therefore the results from the analysis will be conservative, understating the effect of WIC.

The regression analysis was restricted to children age 1-4 who were income eligible for WIC (proxied by income less than 200 percent of poverty or participation in the Food Stamp or AFDC programs) in households in which some person other than a child is participating in WIC. The sample used in the analysis included a total of 180 children, 110 who participated in WIC and 70 who did not.

Children's intake of each of the eight nutrients and food energy, the dependent variables, was measured as nutrient adequacy ratios. A nutrient adequacy ratio is the nutrient intake of the child (averaged over

the 2 days) divided by the 1989 Recommended Dietary Allowance (RDA) for a child that age. RDA's are often used to compare dietary quality among population subgroups. The 1995 *Dietary Guidelines for Americans* states that RDA's "represent the amounts of nutrients that are adequate to meet the needs of most healthy people. Although people with average nutrient requirements likely eat adequately at levels below the RDA's, diets that meet RDA's are almost certain to ensure intake of enough essential nutrients by most healthy people." It is assumed that subpopulations with low nutrient adequacy ratios have a greater risk of inadequate nutrient intake.

WIC Increased Children's Intake of Iron, Vitamin B₆, and Folate

The regression analysis found that children participating in WIC increased their intake of iron by almost 21 percent of the nutrient's RDA, increased their intake of vitamin B₆ by 23 percent of the RDA, and increased their folate intake by 91 percent of the RDA. The findings regarding iron and vitamin B₆ are especially important since a large percentage of children, regardless of WIC status, failed to meet the RDA for those nutrients. Low intake of iron, which may lead to anemia, is considered to be a current public health issue, while low intake of vitamin B₆, which is associated with neurologic abnormalities, dermatitis, impaired immune function, and anemia, is considered to be a potential health issue.

WIC's effect on the intake of vitamin C, vitamin A, and protein was positive but not statistically significant. These results occurred despite a probable downward bias against WIC due to the effect of rationing, which makes finding positive statistical significance more difficult. That is, the fact that children who are

nutritionally better off are excluded from participating in WIC tends to underestimate the effects from participating in WIC. The expansion of the WIC program in recent years, however, has allowed a larger proportion of lower risk children to participate in the program. Thus, the results of this study might be less subject to rationing bias than if earlier years had been studied. Regression results for energy were negative and insignificant, indicating that the increase in intake of iron, vitamin B₆, and folate was a result of increased nutrient density and not due to increased caloric intake.

References

- Fraker, T., S.K. Long, and C.E. Post. *Analyses of the 1985 Continuing Survey of Food Intake by Individuals*, Vol. 1. Washington, DC: Mathematica Policy Research, Inc., 1990.
- Oliveira, Victor, and Craig Gundersen. *WIC and the Nutrient Intake of Children*. Food Assistance and Nutrition Research Report No. 5. U.S. Department of Agriculture, Economic Research Service, March 2000.
- U.S. Department of Agriculture, Food and Nutrition Service. *Annual Historical Review Fiscal Year 1997*. September 1999.
- U.S. Department of Agriculture, Food and Nutrition Service. *Program Information Report (Keydata)*, U.S. Summary, September 1999. November 1999.
- U.S. Department of Agriculture, Food and Nutrition Service. *Study of WIC Participant and Program Characteristics 1996*. August 1998.
- U.S. Department of Agriculture, Food and Nutrition Service, Office of Analysis and Evaluation. *Income Variability Among Families with Pregnant Women, Infants, or Young Children*. Washington, DC: Mathematica Policy Research, Inc., 1997. ■

Organic Marketing Features Fresh Foods and Direct Exchange

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After struggling to build market recognition and supply capacity for many years, the organic farming industry is now one of the fastest growing segments of U.S. agriculture. USDA estimates that certified organic cropland more than doubled in the United States between 1992 and 1997, and two organic livestock sectors—eggs and dairy—grew even faster. Recent data suggest that this momentum continued or accelerated in 1998 and 1999. While processed foods made with organic ingredients and sold through national distributors account for much of this growth, fresh vegetables, milk, and other perishables marketed directly to consumers, chefs, and retailers are still a major focus of this sector.

Sales of organic products through natural food stores, direct markets, conventional grocery stores, and exports more than doubled between 1992 and 1996, to \$3.5 billion, according to industry data, mirroring the growth in acreage during this period. Exports accounted for about 5 percent of sales during this period and are currently under 5 percent. More recent industry data on organic sales through natural food stores, the largest outlet for

organic products in the United States, showed sales continuing to grow at 20-25 percent annually through this channel and reaching \$4 billion in 1999. Fresh fruits and vegetables are still the top product category for organic sales in natural food stores.

The World Trade Organization/United Nations International Trade Centre estimates that combined retail sales of organic food and beverages in major world markets—the United States, Japan, Denmark, France, Germany, the Netherlands, Sweden, Switzerland, and the United Kingdom—was \$11 billion in 1997 and more than \$13 billion in

1998. Organic food sales in 1997 accounted for 1-2 percent of total food sales in most of these countries, including the United States, and annual growth rates are forecast at 20 percent or more for the next 5-10 years for most of these countries, according to the International Trade Centre.

Organic Farming Highest for Fruits and Vegetables

A study by USDA's Economic Research Service (ERS) reports that farmers in 49 States used organic production methods and third-party organic certification services on 1.35



Organic livestock production systems attempt to accommodate an animal's natural and behavioral requirements, requiring dairy cows, for example, to have access to pasture.

Credit: Photo courtesy of www.organicvalley.com.

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million acres of farmland in 1997. About two-thirds of the certified U.S. organic farmland was used for crops, and the rest was used as pasture. The ERS study analyzed data from 40 State and private certification services and excluded uncertified organic production, even though it may represent a large segment of organic production, because of the difficulty in determining the production criteria used by uncertified growers (see box on organic standards and certification).

Organic farming has made deeper inroads in the fruit, vegetable, and other high-value specialty crop industries than in the major grain and oilseed industries. While less than two-tenths of 1 percent of the U.S. corn, soybean, and wheat crops were grown organically in 1997, over 1 percent of the dry peas and tomato crops and about 2 percent of the apple, grape, lettuce, and carrot crops were organic. Nearly one-third of the U.S. herb and "mixed vegetable" crops were grown organically in 1997. A mixed vegetable crop is a mixture of horticultural crops (mostly vegetables) grown on a small farm or parcel.

The U.S. markets for organic vegetables, fruits, and herbs have been developing for decades. These crops are grown organically in more States than any other type of commodity. State and private groups certified over 180,000 acres of these crops in 44 States in 1997, more than double the amount certified in 1994. Cultivated and wild-harvested herbs, such as St. John's Wort, showed the biggest gains.

Large farms produced processed tomatoes, organic wine grapes, and other high-value crops on a commercial scale, while numerous small farms specialized in mixed vegetable production for direct marketing to consumers and restaurants. California was the top producer of organic fruits and vegetables. Arizona, Florida, Texas, and Washing-

ton were also leading States for these crops.

In 1997, U.S. farmers certified nearly 3,000 acres of organic mixed vegetables on farms or parcels that were 5 acres or less, and over 14,000 acres on farms and parcels over 5 acres. New York organic producers had over 1,400 acres in the 5-acres-or-less category. Mixed vegetable producers often target farmers markets, consumer-supported agriculture subscriptions (see box on farmer-to-consumer connections), restaurants, and other direct marketing outlets. USDA producer surveys indicate that organic vegetable growers are smaller than conventional growers, and a much higher percentage of organic growers use direct marketing.

Organic farmers also grow major grains and oilseeds on a small scale in the United States. Organic wheat was grown on over 125,000 certified acres in 1997, organic corn was grown on over 42,000 acres, and organic soybeans were grown on about 82,000 acres. Other field crops produced organically in 1997 include barley, oats, sorghum, rice, spelt, millet, buckwheat and rye, dry peas, lentils, dry beans, flax, and sunflowers.

Thirty-nine States had certified organic hay and silage production, with most acreage in Idaho, Wisconsin, New York, North Dakota, Minnesota, Montana, Vermont, and South Dakota. Acreage of these crops expanded 51 percent between 1995 and 1997, as the number of certified organic milk cows more than doubled during that period.

Organic meat and poultry markets have lagged behind those for crops partly because meat and poultry could not be labeled as organic until February 1999, when USDA approved use of a provisional label. The U.S. Food and Drug Administration regulates nonmeat animal foods (eggs and dairy products), and these products were allowed to carry an organic label throughout

the 1990's. While the number of certified organic beef cows, hogs, sheep, and lambs declined during the study period, 1992-97, the number of organic dairy cows and layer hens increased sharply. The market for organic meat products is growing now that organic labeling is permitted, and the growing market for organic milk and eggs has increased the demand for certified organic pasture and certified organic feed grains.

Farmers and ranchers in 23 States raised a small number of certified organic cows, hogs, and sheep in 1997. Dairy cows were raised organically in 13 States in 1997, and New York, Wisconsin, and Minnesota were the top three producers. The number of certified organic milk cows in the United States nearly tripled between 1992 and 1994 and more than doubled between 1994 and 1997. Organic dairy sales in mainstream supermarkets were up 200 percent or more in several major markets—including Baltimore, Phoenix, Detroit, and Boston—between December 1997 and December 1998, and jumped over 500 percent in the Houston market, according to industry sources. California was the leader in organic poultry production, followed by New York and Virginia. Other organic animal specialties, including goats, fish, and honeybees, were certified in several States.

State and Federal Government efforts to facilitate organic production have focused primarily on developing national certification standards to assure consumers that certified organic commodities meet consistent standards. Now, however, a small number of new programs and pilot projects are under way to help organic producers with production problems and risks. Several States have programs that help producers meet the cost of organic certification, and USDA is planning to expand crop insurance coverage to organic producers. USDA's

Organic Standards and Certification

Organic farming systems rely on ecologically based practices, such as biological pest management and composting; virtually exclude the use of synthetic chemicals, antibiotics, and hormones in crop production; and prohibit the use of antibiotics and hormones in livestock production. Under organic farming systems, the fundamental components and natural processes of ecosystems, such as soil organism activities, nutrient cycling, and species distribution and competition, are used as farm management tools. For example, food and shelter are provided for the predators and parasites of crop pests, planting and harvesting dates are carefully planned and crops are rotated, and animal manure and crop residues are cycled in organic production systems. Organic livestock production systems attempt to accommodate an animal's natural nutritional and behavioral requirements, requiring dairy cows and other ruminants, for example, to have access to pasture.

Private organizations, mostly non-profit, began developing certification standards in the early 1970's as a way to support organic farming and thwart consumer fraud. Some States began offering organic certification services in the late 1980's for similar reasons. The resulting patchwork of standards in the various certification programs, however, caused a variety of marketing problems. Congress passed the Organic Foods Production Act of 1990 to establish national standards for organically produced commodities, and USDA promulgated final rules for implementing this legislation in December 2000. These regulations require that all except the smallest organic growers and handlers (including food processors) be certified by a State or private agency accredited under the uniform standards developed by

USDA, unless the farmers and handlers sell less than \$5,000 per year in organic agricultural products. Retail food establishments that sell organically produced agricultural products but do not process them are also exempt from certification.

The national organic standards address the methods, practices, and substances used in producing and handling crops, livestock, and processed agricultural products. Although specific practices and materials used by organic operations may vary, the standards require every aspect of organic production and handling to comply with the provisions of the Organic Foods Production Act. Organically produced food cannot be produced using genetic engineering and other excluded methods, sewage sludge, or ionizing radiation. These standards include a national list of approved synthetic, and prohibited nonsynthetic, substances for use in organic production and handling.

USDA organic standards for food handlers say that all nonagricultural ingredients, whether synthetic or nonsynthetic, must be included on the national list. Handlers must prevent the commingling of organic with nonorganic products and protect organic products from contact with prohibited substances. In a processed product labeled as "organic," all agricultural ingredients must be organically produced unless the ingredient(s) is not commercially available in organic form.

The labeling requirements under the national standards apply to raw, fresh products and processed foods that contain organic ingredients and are based on the percentage of organic ingredients in a product. Agricultural products labeled "100 percent organic" must contain only organically produced ingredients (excluding water and salt). Products

labeled "organic" must consist of at least 95-percent organically produced ingredients. Products labeled "made with organic ingredients" must contain at least 70-percent organic ingredients. Products with less than 70-percent organic ingredients cannot use the term organic anywhere on the principal display panel but may identify the specific ingredients that are organically produced on the ingredients statement on the information panel. The USDA



organic seal—the words "USDA organic" inside a circle—may be used on agricultural products that are "100 percent organic" or "organic." A civil penalty of up to \$10,000 can be levied on any person who knowingly sells or labels as organic a product that is not produced and handled in accordance with these regulations.

USDA is currently implementing these organic regulations, and all agricultural products that are sold, labeled, or represented as organic must be in compliance with the regulations after the 18-month transition period is completed in late 2002. For further information, visit USDA's Agricultural Marketing Service/National Organic Program (NOP) Web site at www.ams.usda.gov/nop/, or contact NOP staff at (202) 720-3252.

Sustainable Agriculture Research and Education program has funded research on sustainable and organic programs since the early 1990's, and USDA is developing a new pilot research project on organic pest management.

Natural Food Stores Play Lead Marketing Role

Organic food is sold to U.S. consumers through three main venues—natural food stores, conventional grocery stores, and direct-to-consumer markets—and a small amount is exported to foreign markets. USDA does not have national statistics on organic retail sales, but

a New York-based market research firm, Packaged Facts, has reported total organic retail sales since 1996. Packaged Facts and other industry sources estimated that total organic sales through all marketing outlets rose steadily from about \$1 billion in 1990 to \$3.3 billion in 1996, and Packaged Facts estimates that organic food sales reached \$7.8 billion in 2000.

Natural food stores began growing in size and product selection during the early 1990's, making organic food increasingly available to U.S. consumers. Conventional grocery stores began integrating a wider selection of organic products in the late 1990's and now account

for 49 percent of total organic sales, about the same as natural food stores (48 percent), according to Packaged Facts. Direct markets (such as farmers markets) captured 3 percent of total organic sales to U.S. consumers in 2000.

Purveyors of natural products have been a primary sales force for organic food since the organic food movement began over half a century ago. While natural food stores have historically been small, independent outlets, large natural food supermarket chains have begun to emerge, helping to push growth in organic food sales. Growth in the number of natural food supermarkets is substantially outpacing

Making Farmer to Consumer Connections: Four Types of Markets

Organic farmers market their food directly to consumers much more frequently than conventional farmers, and the last decade has seen a renaissance in the use of farmers markets across the country. Farmers also entice consumers to farms with an increasing array of fruits, vegetables, herbs, plants, crafts, and other goods available for purchase, and music, hayrides, wine tasting, cider making, and other activities offered for fun. Organic farmers in the United States have pioneered new forms of direct marketing, such as consumer-supported agriculture (CSA) farm subscriptions. At the same time, natural food stores are an important outlet for organic food purchases. The case studies that follow illustrate four types of market techniques that are used especially for organic food sales.

A Day in the Country: Farm Visits

Walker Farm is a 200-year-old family farm that markets certified organic produce directly to consumers in its seasonal farm stand and sells annual and perennial plants in its garden center. The farm is located in southeastern Vermont

about 2 hours from Boston, Massachusetts, and 1½ hours from Hartford, Connecticut. The current generation began farming the property in 1973 and traces family ownership of the Walker Farm back to 1770, when Captain Issac Miller selected the 100-acre lot with "good flat tillable land."

Walker Farm produces certified organic fruits and vegetables on 30 acres of land and raises annual and perennial flowers in 14 greenhouses. Flower sales begin in mid-April and produce sales begin in June. Sales continue through Thanksgiving. Specialty products, product quality, and friendly service are the focus of the Walker Farm's retailing operations. Display gardens and scenic views of the Connecticut River Valley are also major attractions that draw consumers to Walker Farm.

Sharing Production Risks and Bountiful Harvests Through CSAs

From the Ground Up, a farmer-run CSA near Washington, DC, formed in 1992 with the intent to provide fresh, affordable produce to low-income neighborhoods in the city. This CSA grows and distributes

organic produce to people who have purchased "shares" in the farm at the beginning of the growing season for a set price, based on the costs of production and distribution. A full share, enough fresh produce to feed a family of four during the CSA's 6-month season, is \$355. Some shares are sold at half price to low-income families.

In 2000, From the Ground Up had about 300 shareholders and delivered fresh produce to 11 different distribution points in the Washington, DC, area from late May until Thanksgiving. In addition to running the CSA, From the Ground Up also sponsors a farmers market in a low-income city neighborhood and donates surplus products to the Capital Area Food Bank. From the Ground Up holds seasonal festivals and other special events, invites members to volunteer in the gardens, and hosts tours of its farming operation.

Connecting Through Public Markets

The Takoma Park Farmers Market in Takoma Park, Maryland, started 19 years ago and is now one of the most successful farmers markets in

growth in independent natural food shops and health food stores, although there is still a much higher number of small, independent shops. An industry trade publication, the *Natural Foods Merchandiser*, reports that 221 national natural food supermarkets operated in 1999, up 58 percent from the previous year. The number of independent natural food and health food stores rose to 6,900 in 1999, up 5 percent from the previous year. ERS estimates that natural food supermarkets account for about 1 percent of all U.S. supermarkets.

With sales of \$833 million, fresh organic fruits and vegetables edged out cereals, pasta, canned food, and

other packaged grocery items (sales of \$692 million) in 1999 as the top-selling organic food category in natural food stores. Other top-selling organic food categories in 1999 were bulk foods (nuts, grains, dried fruit, and candy), with \$437 million in sales, frozen and refrigerated foods (\$323 million), dairy products (\$171 million), and nondairy beverages (\$157 million). Organic dairy was the most rapidly growing segment, with sales up over 500 percent between 1994 and 1999.

As consumer demand for organic food has expanded, more and more conventional retailers have become interested in selling organic foods. Conventional grocery stores and

supermarkets have used a variety of retail formats to market organic food, including sequestering organic foods inside "natural food" sections and integrating organic foods with other foods on the supermarket shelves.

In 1999, sales of selected organic foods (fresh fruits and vegetables were not included) in conventional supermarkets totaled \$383 million, according to Spence Information Services, a private marketing information company. Sales of organic milk, half & half, and cream in conventional supermarkets jumped from \$51 million in 1998 to \$80 million in 1999. Conventional retailers have begun to outsell natural food

the Washington, DC, area. In 1999, 22 farmers had permits to sell at the market and most came regularly. Each Sunday from April to December, part of the town's main street is closed to traffic for the market.

As the season gets under way in early April, and with only a few products ready for harvest and sale, a farmer may make only \$300 for his or her efforts. At the height of the harvest, however, when offerings are bountiful, a farmer can earn as much as \$3,000 per Sunday. Total market sales range from about \$7,000 on slow days to about \$39,000 on good days.

Organic and conventional farmers alike receive permits to sell at the Takoma Park Farmers Market. In 1999, about half the farmers were organic (many of these are not certified) or "no-spray" (they don't use any pesticides), a quarter were "low-spray" (reduced pesticide use), and a quarter were conventional. Most of the farmers at this market own or lease between 10 and 20 acres, although not all the land is in production, and most limit themselves to direct sales outlets. In addition to participation in the Takoma Park Farmers Market, they may use other

farmers markets, sell shares of their produce through CSA operations, sell directly to restaurants, and use other direct-to-consumer venues.

Stores That Emphasize Fresh and Natural Foods

As small natural food stores grew into large natural food supermarkets during the 1980's and 1990's, they greatly expanded marketing opportunities for organic farmers and extended the selection and availability of organic foods for consumers. Whole Foods Market started in 1980 with one store in Austin, Texas, and is now the largest natural food retailer in the United States, and the largest purveyor of organic foods in the world. The company began its rapid expansion with the acquisition of Wellspring Grocery in 1991, followed by the acquisition of Bread & Circus in New England, Mrs. Gooch's in California, Fresh Fields in the Mid-Atlantic, and other natural food stores and chains across the country. By 2000, Whole Foods was operating 120 stores nationwide. Now a \$1.6 billion business, it plans to have 200 stores by 2003, including outlets in such cities as New York (Manhattan), Denver, and Atlanta.

Target areas increasingly include cities, such as Albuquerque and Denver, which were once commonly believed to be unable to support large natural food supermarkets.

Whole Foods Market carries a wide selection of organic food and has a private label for organic and premium food. The "Whole Foods" label covers more than 400 products, including organic pasta, organic chocolate bars, and organic beer. Whole Foods works with hundreds of other businesses to ensure that it has the products, services, and retail environment that its customers desire. When choosing which suppliers to work with, the company tests products to make sure they meet Whole Foods quality standards for taste, nutrition, and freshness. The company refrains from stocking products with artificial flavors, colors, or preservatives, sells only meat and seafood that are free of chemicals and hormones, and requires produce to carry a country of origin flag because some food-exporting nations lack strict pesticide regulations and farmer training. Whole Foods also conducts activities to support organic agriculture and encourage the development of uniform organic standards.

retailers in several organic food products. Conventional retailers totaled more than half of industry-wide sales of organic milk, half & half and cream, nondairy beverages, cold cereals, cookies and snack bars, and tofu in 1999.

Conventional retailers are expected to continue giving natural food retailers stiff competition in the organic food sector, while natural food retailers are beginning to adopt some marketing techniques that are popular with conventional retailers. Nearly all conventional supermarkets use private labels to increase profits and enhance consumer loyalty through store brand recognition. A few large natural food retailers now have begun to develop private labels for organic foods and other products. Some industry analysts believe that natural food retailers have an edge on conventional retailers in the private-label area because consumers who shop in natural food stores have greater trust in the store itself. Conventional retailers, however, have the advantage of more knowledge and experience with the private-labeling process.

Direct Markets Gaining in Popularity

A higher proportion of total organic sales are made through direct markets, such as farmers markets, roadside stands, and mail order sales, than for conventional sales. Researchers at Cornell University recently estimated that only about 1.6 percent of fresh produce sales in the United States are transacted directly between the producer and consumer. For organic sales, direct markets accounted for 3 percent of total organic sales during 2000, according to Packaged Facts.

Many organic growers market directly to grocery retailers and restaurants as well as to individual consumers. A 1997 survey of certified organic producers in the United

States conducted by the Organic Farming Research Foundation—a California nonprofit group that sponsors research on organic farming—found that direct market use is extensive and varies by commodity sector, with fruits and vegetables the highest. Organic producers reported selling produce from about 23 percent of their vegetable acreage directly to consumers through on-farm sales (9 percent), farmers markets (8 percent), consumer-supported agriculture subscriptions (4 percent), and other types of direct-to-consumer outlets (2 percent). Producers marketed about 20 percent of the organic fruit and vegetable acreage directly to grocery retailers and restaurants.

A 1994 USDA survey of certified organic vegetable producers in the United States found that the use of direct-to-consumer markets varied with farm size, with 60 percent of the growers with under 10 acres (three-quarters of the respondents) using this channel compared with 12 percent with 10 acres or more. A higher percentage of the smaller growers also marketed directly to grocery retailers (11 percent versus 6 percent) and through grower cooperatives (10 percent versus 3 percent), while larger growers marketed more heavily to vegetable packers/shippers, brokers, and food processors.

Organically grown food is widely available in farmers markets across the United States. In fact, organic-only farmers markets operate in Oregon, Illinois, Missouri, and other States. The 1990's renaissance in farmers markets in the United States—fostered by State and local municipalities wanting to revitalize neighborhoods and preserve regional farmland and open space—has been a boon to organic farmers, who tend to use this marketing outlet more heavily than conventional farmers. States are also producing directories of farm stands and pick-your-own farms, including organic

directories, and developing logos like “Jersey Fresh” to promote locally grown food.

Consumer-supported agriculture (CSA) is an innovative direct-marketing arrangement that U.S. organic farmers have been using for about 10 years. Consumers “subscribe” to the harvest of a CSA farmer for an entire season and pay for their produce in advance. Under a CSA arrangement, consumers share the production risks and variable harvests of the farmer—including especially abundant harvests—and sometimes participate in festivals and other social activities at the farms. Over 800 CSA farms currently operate in the United States, according to the Robyn Van En Center, Wilson College, Pennsylvania, and most use organic production systems.

Organic farmers are active in efforts to improve the quality and availability of locally grown food in low-income communities and play an active role in such programs as USDA's Community Food Security Initiative (see “Community Food Security Programs Improve Food Access” elsewhere in this issue). Activities of these networks of organic farmers include starting gardens in elementary schools, holding gardening and nutrition workshops, gleaning from farm fields, running farm apprenticeship programs, establishing community gardens in housing projects, and facilitating the use of locally grown food in schools.

Regional Co-ops and Initiatives Promote Organic Sales

Unlike conventional agriculture, in which cooperatives focus on jointly buying farm supplies as well as marketing products, organic cooperatives focus mostly on marketing and distributing organic products. Northeast Cooperative, for example, distributes a full line of

organically grown and natural products to retail cooperatives, retail stores, and buying clubs in the Northeast. First formed in 1984, the cooperative's sales have grown steadily since 1988. Part of its recent growth has resulted from filling in supply gaps created when supply channels were disrupted following a large merger of food distributors.

One of the fastest growing cooperatives in the United States is the Coulee Region Organic Produce Pool (CROPP), headquartered in La Farge, Wisconsin. CROPP is the Nation's first cooperative dedicated to distributing organic vegetables and dairy products and is made up exclusively of small and midsized family farmers. It began in 1988 with only seven vegetable farmers and has since become the largest organic farmers cooperative in the United States, representing 330 farm families in 13 States and employing over 350 people. CROPP has doubled its revenues in the last several years and sells products in all 50 States and Japan. It currently manages a pool of produce, dairy, poultry, and meat producers and sells a wide variety of milk, cheese, butter, egg, and vegetable products under its own brand, Organic Valley.

CROPP has taken several steps toward becoming a value-added, vertically integrated enterprise—including purchasing warehouses and cutting and wrapping machines, and managing a creamery and a reloading operation—which have lowered operating costs and improved quality control. Several dozen small to midsized plants across the United States help manufacture its line of dairy products, and independent milk haulers and truckers deliver its milk. All of CROPP's livestock, crops, manufacturing plants, and processed prod-

ucts are certified organic by an independent certification organization. CROPP establishes farmer-determined prices to reflect fair return and to use these prices to guide the cooperative's marketing.

About 60 percent of Organic Valley products are distributed through natural food warehouses, and most of the rest goes through conventional grocery warehouses. Although CROPP receives most orders by fax machine, it recently started using electronic data interchange to accept orders from some of its larger customers. One of the cooperative's primary goals is to market food as directly as possible to the consumer.

Nonprofits and government agencies are also developing activities, alone and collectively, to promote regional production and marketing of organically grown food. The Colorado Organic Producers Association was formed over a decade ago to promote and facilitate the production, distribution, and consumption of Colorado organic food products and is supported by membership dues. The Midwest Organic Alliance, a nonprofit organization funded by the Pew Charitable Trusts, was founded in 1995 to increase the amount of organic production in the Upper Midwest and to conduct consumer marketing efforts throughout the region. The Alliance has developed a training program for grocery employees, an organic farming curriculum, and an organic meat-marketing infrastructure for its five-State region.

Public/private research partnerships include a new consortium of four universities—the Ohio State University, North Carolina State University, Iowa State University, and Tufts University—with the Organic Farming Research Foundation to work on USDA-funded

research to revitalize small and midsized farms through organic research, education, and extension. Many industry observers believe that the sector of small and midsized organic producers, who emphasize fresh, high-quality farm products, local markets, and direct exchange with consumers, will remain strong even as the organic industry expands and larger growers, processors, and retailers enter the market.

References

Dimitri, Carolyn, and Nessa Richman. *Organic Food Markets in Transition*, Policy Studies Report No. 14. Wallace Center for Agricultural and Environmental Policy at Winrock International, April 2000.

Fernandez-Cornejo, Jorge, Catherine Greene, Renata Penn, and Doris Newton. "Organic Vegetable Production in the U.S.: Certified Growers and Their Practices," *American Journal of Alternative Agriculture*, Vol. 13, No. 2, 1998.

Food Marketing Institute. *A Retailer's Guide to Natural Food and Related Products*. Washington, DC: Food Marketing Institute, 1997.

Greene, Catherine. "U.S. Organic Agriculture Gaining Ground," *Agricultural Outlook*, AGO-270, April 2000, U.S. Department of Agriculture, Economic Research Service.

Kaufman, Phil. "Natural Foods Supermarkets Gaining in Popularity," *FoodReview*, Vol. 21, Issue 3, September-December 1998, pp. 25-27.

Meyers, Steve, and Somynn Rorie. "Facts and Stats: The Year in Review," *Organic and Natural News*, Vol. 2, No. 12, 2000.

Natural Foods Merchandiser. Boulder, CO: New Hope Communications, various issues. ■

Fast Food Growth Boosts Frozen Potato Consumption

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Potatoes are the most important vegetable crop in the United States. The crop's 1999 farm receipts totaled \$2.7 billion, or 18 percent of all vegetable and melon farm cash receipts. Potatoes, rich in vitamin C, potassium, and other vital nutrients, are a staple food in the United States. The 1999 per capita consumption of vegetables was 454 pounds, fresh-weight equivalent, of which 142 pounds, or 31 percent, were potatoes. Pound for pound among U.S. crops, potatoes are topped only by wheat flour in importance in the U.S. diet. The most significant changes in potato consumption over the past several decades have been the rise of frozen potato use and the decline of fresh potato use.

In 1960, U.S. per capita consumption of fresh potatoes was 81 pounds (farm weight) per year, while per capita consumption of all processed potatoes was only 25 pounds per year. By 1971, per capita consumption of all processed potatoes, driven largely by frozen products, surpassed fresh potato consumption. While consumption of fresh potatoes has averaged about 50 pounds per person since 1975,

consumption of frozen potato products rose steadily to 63 pounds in 1999 (fig. 1). Dehydrated potatoes (14 pounds), potato chips (16 pounds), and canned potatoes (2 pounds) represented smaller segments of the market.

The growth of the fast food industry spurred the shift toward frozen potato products. USDA's 1994-96 Continuing Survey of Food Intakes by Individuals (CSFII) shows that most U.S. fresh potato consumption—as well as consumption of potato chips, dehydrated potatoes, and canned potatoes—occurs at home. Frozen french fries are sold predominately for away-from-home consumption, with fast food establishments accounting for 67 percent of the frozen french fry market, followed by a 13-percent share for restaurants.

CSFII data show distinct regional variations in the use of potato products. French fry consumption is much higher in the South and Midwest than in the Northeast and West. Consumers in the Midwestern States consume more fresh potatoes, potato chips, and dehydrated potatoes than consumers elsewhere. Rural residents tend to consume more potato products than consumers living in metropolitan cities and suburban areas.

CSFII data also show that African-Americans consume more potato chips and french fries, on a per

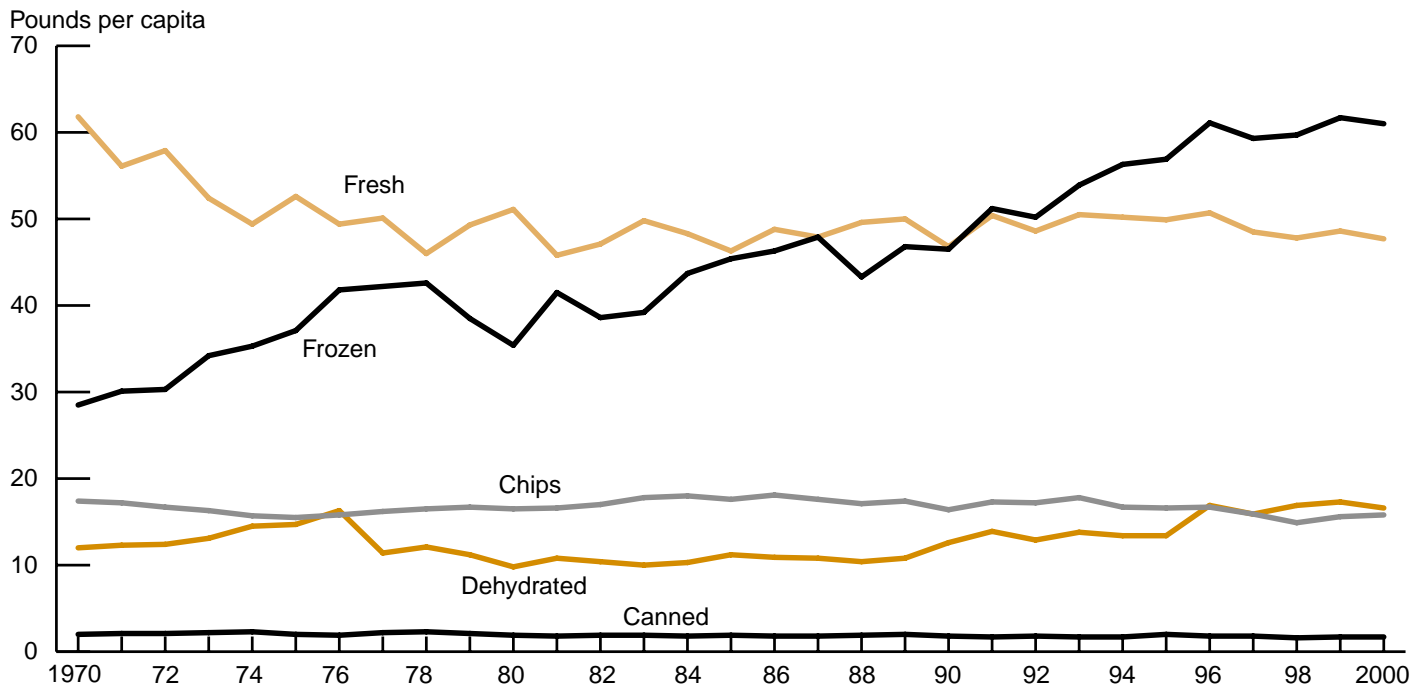
capita basis, than other Americans. Seniors favor consumption of fresh and canned potatoes, while teenagers consume more chips and french fries than other age groups.

These findings are taken from an analysis of the 1994-96 CSFII, USDA's most recent food consumption survey. Each year of the CSFII's 3-year data set comprises a nationally representative sample of noninstitutionalized persons residing in 50 States and Washington, DC. Survey respondents were interviewed in person on 2 nonconsecutive days and asked to recall all the food and beverages they had consumed in the last 24 hours. More than 15,300 individuals provided dietary data for both days. The respondents provided a list of foods consumed as well as information on where, when, and how much of each food was eaten. The survey collected an array of economic, social, and demographic characteristics for each respondent.

USDA's Agricultural Research Service (ARS) has developed recipes that list ingredients and their quantities for over 7,300 foods. For each food, ARS has also developed the number of servings relative to USDA Food Guide Pyramid dietary recommendations. Servings data comprise the five major food groups—grain, vegetable, fruit, dairy, and meat—as well as their subgroups. For example, the

Lin, Allshouse, and Kantor are agricultural economists with the Food and Rural Economics Division, and Lucier is an agricultural economist with the Market and Trade Economics Division, Economic Research Service, USDA.

Figure 1

Frozen Potatoes Now Outweigh Fresh Potatoes in Consumer Preference

Source: USDA's Economic Research Service.

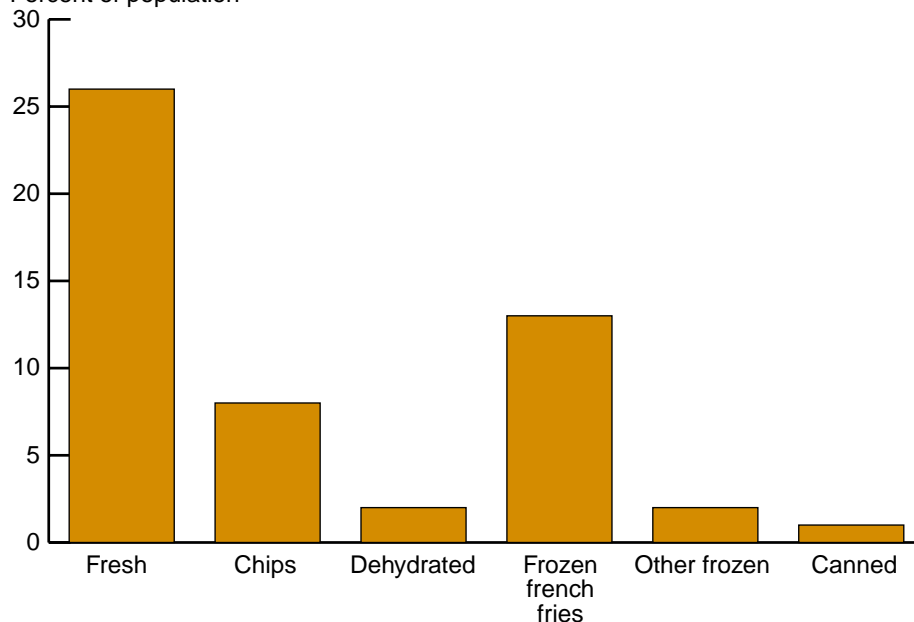
vegetable group has six subgroups, including potatoes. The ARS recipe files include 33 potato products. These 33 products are grouped into six categories: fresh potatoes, chips, dehydrated potatoes, frozen french fries (called french fries), other frozen potatoes (such as hash browns and Tater Tots), and canned potatoes (see box on potato use in the United States).

Our analysis of the CSFII data shows that fresh potatoes and french fries are the two most frequently consumed potato products in the United States. On a given day, more than a quarter of consumers (26 percent) ate fresh potatoes and 13 percent ate french fries (fig. 2). French fries accounted for about 95 percent of the total servings of all frozen potatoes. About 1 in every 12 consumers (8 percent) ate potato chips on a given day. Other potato products, including dehydrated, other frozen potatoes, and canned potatoes, were consumed less frequently.

Figure 2

Fresh Potatoes and French Fries Are Most Likely To Be Consumed on a Given Day

Percent of population



Source: USDA's CSFII 1994-96, 2-day dietary recall data.

Potato Use in the United States

Although there are numerous potato varieties, most can be grouped into three general categories: russet, white, and red.

- Russet potatoes account for about 70 percent of the U.S. crop, with production heavily concentrated in Western States. Russet varieties are used for the fresh market and for processing and are particularly well suited for french fries.
- White potatoes range in shape from oblong to round and are grown nearly everywhere in the Nation, with the heaviest concentration in the Central and Eastern States. White potatoes account for about 25 percent of the U.S. crop. They are used primarily for potato chips and fresh-market consumption.
- Red potatoes, named for their skin color, are marketed largely in the fresh market. Red potatoes account for about 5 percent of the U.S. crop, with production concentrated in the upper Midwest.

Potatoes are consumed daily in some form by about 54 percent of

U.S. consumers, reflecting both the importance of potatoes in the national diet and their incredible versatility. About 85 percent of the U.S. potato crop is used for food. The remainder of the crop is either lost (shrinkage and loss during storage and handling) or used as seed or livestock feed.

The major food uses of potatoes include the following:

- Fresh (also called table potatoes) potatoes account for 27 percent of the U.S. potato crop and are used primarily for baked, boiled, or mashed potatoes.
- Frozen french fries account for 29 percent of the U.S. potato crop.
- Other frozen potato products, such as Tater Tots, spiral fries, homefries, wedges, and frozen whole potatoes, use 6 percent of U.S. potatoes.
- Potato chips (including canned shoestring potatoes) use 10 percent of the U.S. potato crop. The Nation's 116 chip manufacturing plants are located regionally, largely to minimize breakage of

the fragile chips during transportation.

- Dehydrated potatoes are made into extruded potato chips (such as Pringles and O'Boise's), mashed potatoes, potato pancake mix, and some canned stews. These food products use 11 percent of the U.S. potato crop.
- Canned potatoes, 1 percent of the total U.S. potato crop, are used in such canned products as small whole potatoes, corned beef hash, various stews, soups, chowders, and commercial potato salad.

Less than 0.3 percent of the U.S. potato crop is used in foods as potato flour and potato starch. Potato flour is used in processed foods, such as breads, rolls, cake mixes, crackers, and pastries, and as a thickener for soup bases and sauces. Potato starch is used in baked goods, such as specialty breads, rolls, and crackers, instant pudding mixes, and molding confections, such as gum drops, jelly beans, and chewing gum.

Fresh Potatoes Prepared at Home, French Fries Prepared Away

Eating out is increasingly popular in the United States. In 1970, American consumers spent 33 percent of total food expenditures away from home. By 1999, that number had risen to 47.5 percent. USDA survey data show that fast food places and restaurants each accounted for only 3 percent of Americans' total caloric intakes during 1977-78. By 1994-96, fast food places accounted for 11 percent of Americans' caloric intakes, and restaurants accounted for 8 percent.

This study classifies foods as "at home" and "away from home" based on where the food was

obtained or prepared, not where it was consumed. For example, a bagged lunch prepared at home and consumed at work is classified as food at home. A commercially prepared pizza delivered and consumed at home is classified as food away from home.

Food at home is generally obtained at a retail store, such as a supermarket, grocery store, or a convenience store. Food consumed at other people's homes is also classified as food at home. Food away from home is generally purchased from commercial foodservice establishments but can also be obtained in such places as school cafeterias, community feeding programs, or child/adult care centers. In this study, fast food places are foodservice establishments where food is

ordered and picked up at a counter, restaurants are places that have wait staff, and school cafeterias include daycare facilities and summer camps. The category "other" is a catchall category that includes community feeding centers, bars/taverns, vending machines, and other sources of foods.

CSFII data show that about 2 percent of consumers did not eat any at-home food on a given day (table 1). More than half of consumers (55 percent) ate at least one away-from-home food on a given day. The most-frequented foodservice outlets were fast food establishments, with 31 percent of consumers purchasing at least one food item from these places, followed by restaurants, with 17 percent of consumers purchasing at least one food item there.

Table 1

Potato Consumption Varies With Income, Gender, Region, and Other Demographics

Item	Potatoes						
	Population ¹	Fresh	Chips	Dehydrated	Frozen french fries	Other frozen	Canned
<i>Percent</i>							
Food sources:							
At home	98	79	79	89	12	53	80
Away from home	55	21	21	11	88	48	20
Fast food	31	6	7	4	67	23	5
Restaurant	17	12	1	1	13	9	15
School	7	1	3	2	6	12	0
Other ²	13	2	9	2	2	3	1
Census region:							
Northeast	20	18	20	16	16	13	20
Midwest	24	28	29	34	26	22	24
South	35	35	34	35	42	37	37
West	22	20	17	15	19	28	18
Metropolitan Statistical Area status:							
Metropolitan	32	27	31	33	31	33	30
Suburban	47	47	44	47	46	41	31
Rural	21	26	25	20	23	26	39
Race/ethnic origin:							
White, non-Hispanic	73	80	73	78	70	77	72
Black, non-Hispanic	13	8	17	13	16	12	4
Hispanic	11	9	7	7	9	9	8
Others	4	3	3	3	4	3	16
Household income as a percentage of poverty:							
0 – 130 percent	19	17	18	22	19	19	16
131 – 350 percent	42	45	42	41	42	53	41
351 percent and above	39	39	40	38	39	28	43
Gender and age:							
Male:							
All	49	57	62	53	62	63	60
2 – 5 years	5	2	3	3	3	4	2
6 – 11 years	5	3	6	4	5	10	3
12 – 19 years	6	6	10	9	12	10	5
20 – 59 years	27	36	40	31	39	35	38
60 years and older	7	10	3	7	3	4	13
Female:							
All	51	43	39	47	38	38	40
2 – 5 years	5	2	3	3	3	4	3
6 – 11 years	4	2	5	4	5	6	2
12 – 19 years	6	4	6	5	9	4	3
20 – 59 years	28	25	22	29	20	20	22
60 years and older	9	10	2	6	2	4	10

¹ The "population" column indicates the share of the U.S. population that ate at least one food item on any given day.

² Six percent of chips came from vending machines, which are included in the category "other."

Source: CSFII, 1994-96, 2-day dietary recall data.

Seven percent of consumers obtained at least one food item from a school cafeteria on any given day, and 13 percent of consumers obtained at least one food item from other sources.

During 1994-96, the bulk of fresh potatoes, potato chips, dehydrated potatoes, and canned potatoes were purchased at retail stores for home consumption (fig. 3). In 1994-96, 21 percent of fresh potatoes were prepared away from home, mostly by restaurants. Like fresh potatoes, 21 percent of potato chips were obtained from away-from-home sources, with other sources accounting for 9 percent of the market. Vending machines, included in other sources, had a 6-percent share of the chips market. Eleven percent of dehydrated potatoes were obtained away from home, with 4 percent from fast food places. Away-from-home sources accounted for 20 percent of the total canned potato

consumption, with a 15-percent share for restaurants and a 5-percent share for fast food places.

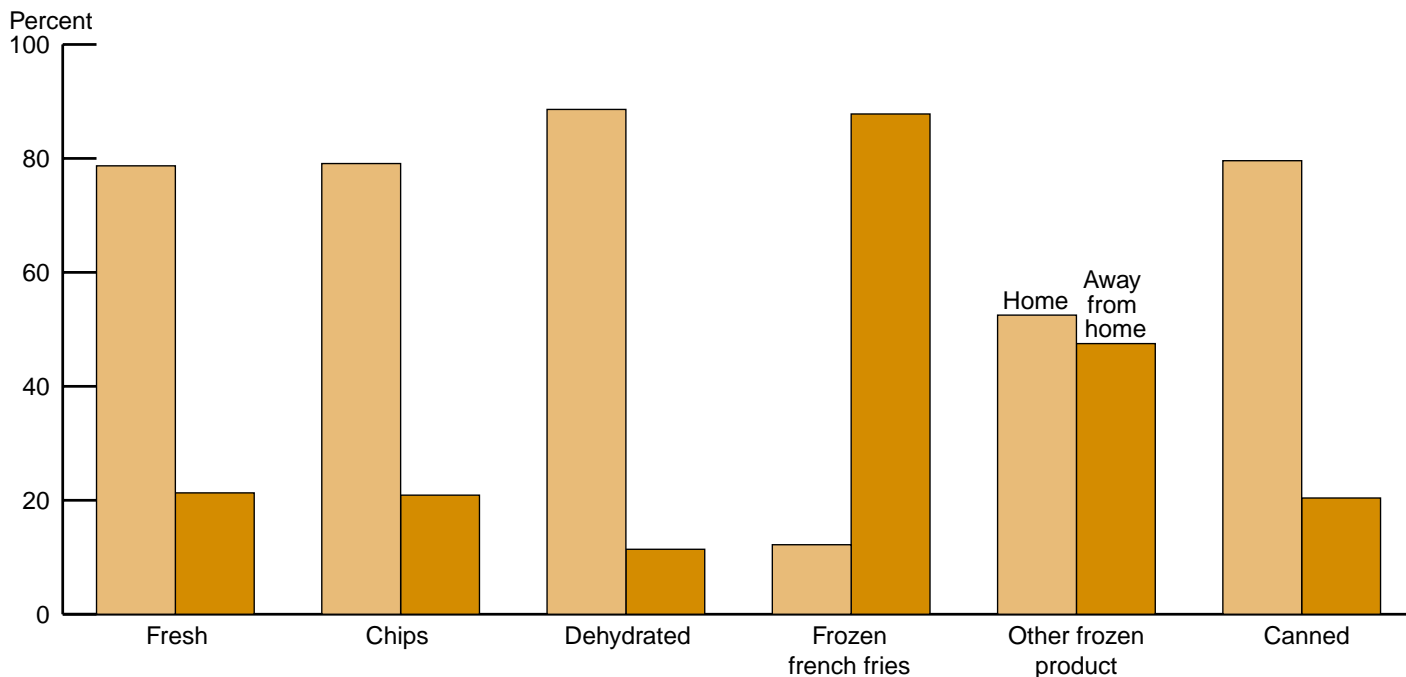
Away-from-home sources dominated the consumption of french fries with an 88-percent market share during 1994-96. Fast food places accounted for 67 percent of french fries, and the amount of french fries obtained at restaurants, 13 percent, was more than the amount purchased at retail stores, 11 percent. School cafeterias accounted for 6 percent of french fry consumption.

Slightly more than half of other frozen potatoes were purchased for home consumption. Other frozen potatoes include such products as Tater Tots, homefries, and potato patties. Fast food places had a 23-percent share of the market for other frozen potatoes, followed by schools with a 12-percent share and restaurants with a 9-percent share.

Potato Dishes Vary by Region and Urbanization...

CSFII data show distinct patterns in the consumption of potato products among the four Census regions—Northeast (20 percent of population), Midwest (24 percent), South (35 percent), and West (22 percent). With a 24-percent share of the U.S. population, the Midwestern States accounted for 26 percent of french fry consumption, 28 percent of fresh potato consumption, 29 percent of chips consumption, and 34 percent of dehydrated potato consumption (table 1). By dividing the consumption share by the population share, we can compare relative consumption, as shown in table 2. For example, table 2 shows that Midwestern States had the highest relative consumption of fresh potatoes, chips, and dehydrated potatoes.

Figure 3
Most Potatoes Are Consumed at Home



Source: USDA's CSFII 1994-96, 2-day dietary recall data.

Southern consumers ate more french fries than consumers in each of the other three regions. The Southern States represent 35 percent of the overall U.S. population and accounted for 42 percent of french fry consumption, 37 percent of other frozen potato consumption, and 37 percent of canned potato consumption. Consumption of french fries

and other frozen potatoes was lowest in the Northeast.

About 47 percent of the U.S. population resides in suburban areas, 32 percent live in metropolitan areas, and 21 percent live in rural areas (table 1). Rural area residents ate more potato products, except for dehydrated products, than suburban or metro residents (table 2). On

a per capita basis, rural area consumers ate 2.7 times as many canned potatoes as suburban consumers. Consumption of fresh potatoes in rural areas was about 24 percent more than in suburban areas and almost 50 percent more than in metropolitan areas.

Table 2
Relative Shares Highlight Differences in Potato Consumption

Demographic profile	Potatoes					
	Fresh	Chips	Dehydrated	Frozen french fries	Other frozen	Canned
	Percent					
Census region:						
Northeast	91	101	83	71	68	105
Midwest	118	125	145	108	93	101
South	99	97	101	120	105	107
West	90	77	66	86	127	84
Metropolitan Statistical Area status:						
Metropolitan	85	98	102	98	103	95
Suburban	100	94	100	98	87	67
Rural	124	117	96	107	125	183
Race/ethnic origin:						
White, non-Hispanic	110	101	107	97	106	99
Black, non-Hispanic	64	133	100	131	94	33
Hispanic	90	68	65	89	85	77
Others	69	64	65	95	59	363
Household income as a percentage of poverty:						
0 - 130 percent	87	96	113	99	99	85
131 - 350 percent	107	101	97	101	126	98
351 percent and above	98	101	96	99	72	110
Gender and age:						
Male:						
All	117	126	109	127	128	123
2 - 5 years	44	62	67	65	81	32
6 - 11 years	59	127	76	111	216	62
12 - 19 years	110	178	154	213	169	94
20 - 59 years	132	147	116	144	131	141
60 years and older	153	39	96	36	53	185
Female:						
All	84	75	91	75	73	78
2 - 5 years	40	69	62	60	77	57
6 - 11 years	50	112	91	107	142	54
12 - 19 years	70	114	96	152	76	53
20 - 59 years	90	80	103	73	72	77
60 years and older	114	20	64	21	39	114

Source: CSFII, 1994-96, 2-day dietary recall data.

...and by Race and Ethnicity

According to the 1994-96 CSFII, non-Hispanic Whites represented 73 percent of the U.S. population and, compared with other racial/ethnic groups, favored potatoes in fresh, dehydrated, and other frozen potatoes. Relative to their proportion of the population, non-Hispanic Whites tended to consume slightly fewer french fries and canned potatoes (fig. 4). Non-Hispanic Blacks represented about 13 percent of the U.S. population. Compared with other racial/ethnic groups, this group reported the highest consumption of potato chips and french fries but the lowest consumption of fresh and canned potatoes.

Hispanics tended to eat fewer potatoes than other racial/ethnic groups. Hispanics represented about 11 percent of the U.S. population and do not appear to have strong preferences or dislikes for any par-

ticular potato product. Hispanics accounted for between 7 and 9 percent of the various potato products consumed in the United States.

Consumption of Chips and Fries Independent of Income

Food consumption is determined by several factors, including income. Based on consumers' responses to an increase in income, foods can be classified as inferior goods (consumption declines when income increases), normal goods (consumption rises by a proportion smaller than the rise in income), or luxury goods (consumption rises at a proportion larger than the rise in income). Consumption of staple foods, such as cereals and potatoes, usually rises with income, but the rise is smaller than the increase in income. Within a food, there exist products of different qualities that

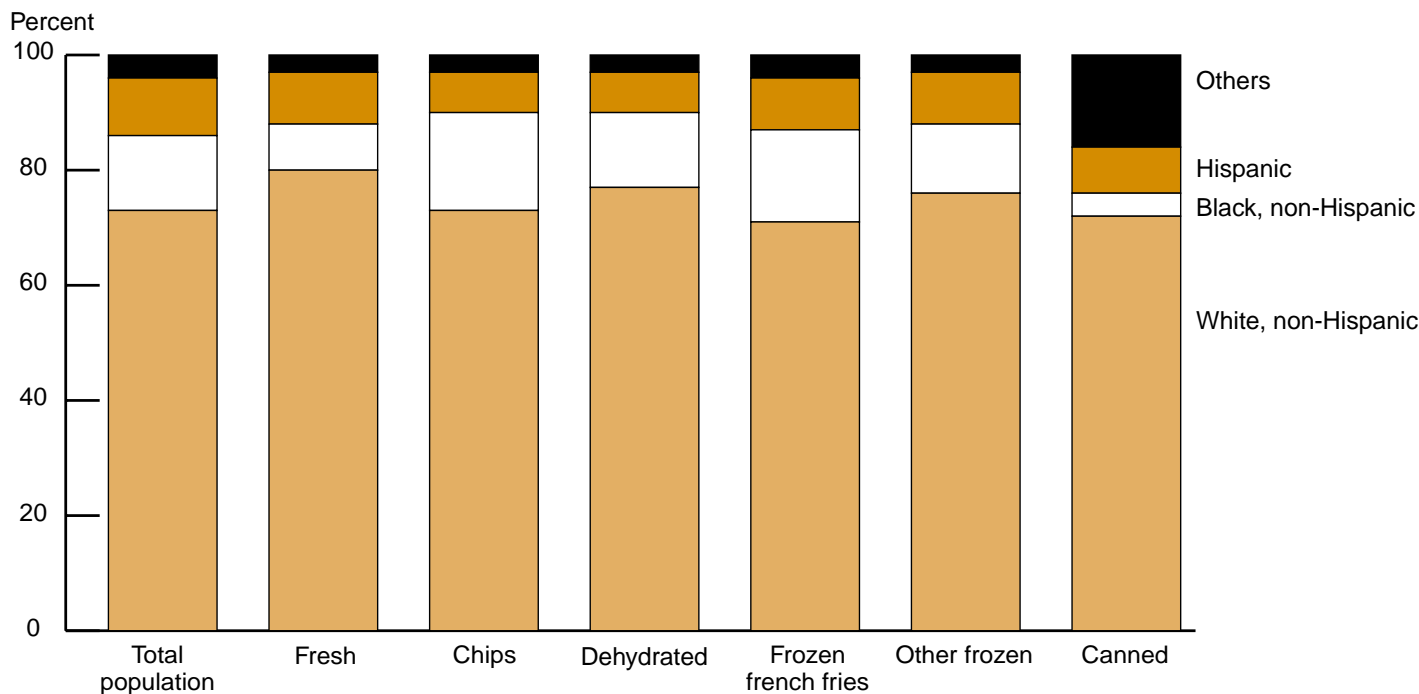
may respond differently to a rise in household income. For example, consumers having more to spend on food may decide to consume more steaks and less ground beef. Similarly, households of different income levels may consume different amounts of potato products.

We classified households into three income groups. About 40 percent of households had high incomes—that is, incomes exceeding 350 percent of the Federal poverty level. (The Federal poverty level was \$15,141 for a family of four in 1995.) Forty-two percent of households had incomes falling between 131 and 350 percent of poverty level. Nineteen percent of households fell into the low-income group, with incomes no more than 130 percent of the poverty level.

CSFII data show that consumption of chips and french fries did not vary much with income. Low-income households consumed, per person, the least amount of fresh

Figure 4

Non-Hispanic Whites' Potato Consumption Is Higher Than That of Other Groups



Source: USDA, CSFII 1994-96, 2-day dietary recall data.

potatoes, chips, and canned potatoes (table 2). Households with incomes between 131 and 350 percent of the poverty level had the highest per capita consumption of fresh and frozen potato products. High-income households consumed more canned potatoes, per person, than other income groups.

Gender and Age Affect Potato Consumption

Males, perhaps because of their larger caloric intake, ate more of all six potato products than did females. This statistic may also reflect a long-held perception by some diet-conscious females that potatoes are a high-calorie, diet-unfriendly food. Males ate about 70 percent more chips, french fries, and other frozen potatoes than females (table 2).

Relative consumption of fresh and canned potatoes increased with age,

with seniors age 60 and older reporting the highest consumption for these two products. Consumption of chips and french fries initially rose with age, peaking, not surprisingly, in the teenage years, and then declined, with seniors consuming fewer chips than even toddlers.

Consumption of other frozen potatoes peaked at the 6-to-11-year-old age group (children in elementary school) and then declined with age. Such products as Tater Tots tend to be popular in school lunches and breakfasts. Seniors ate fewer other frozen potatoes than toddlers. Consumption of dehydrated potato products peaked for males during the teenage years. This statistic is likely an extension of the popularity of potato chips and reflects the consumption of extruded chip products and those made from potato flakes.

Outlook for Potato Consumption

Over the last few decades, dining out has grown in popularity for Americans. Close to half of consumer food expenditures are now spent on eating out. A number of factors contribute to this trend: a growing number of women employed outside the home, more two-earner households, higher incomes, more affordable and convenient fast food outlets, increased advertising and promotion by large foodservice chains, and smaller American households. These factors are expected to continue to boost eating out. As the bulk of fresh potatoes are consumed at home, and a large proportion of frozen french fries is consumed away from home, increased eating out will favor consumption of french fries at the expense of fresh potatoes (see box on nutrient comparisons).

Nutritional Content of Potato Chips, French Fries, and Baked Potatoes

The shift from fresh potatoes to french fries conflicts with dietary guidance advising Americans to choose a diet low in saturated fat and moderate in total fat. Cutting up a low-fat, nutritious potato and frying it in oil adds calories and fat (see table). One hundred grams of baked potato (with the peel) has 108 calories and almost no fat or saturated fat, while 100 grams of french

fries has 309 calories and 16 grams of fat, 5 of which are saturated fat. The numbers for potato chips are even more striking, with each 100 grams packing 536 calories and 35 grams of fat, 11 of which are saturated fat. On the positive side, french fries and potato chips have more dietary fiber than baked potatoes, and higher levels of potassium and folate.

Certain foods are commonly consumed with potato products, such as catsup with french fries, sour cream and butter with baked potatoes, and dip with chips. USDA's Nutrient Database lists nutrient profiles of these foods. The database can be accessed at www.nal.usda.gov/fnic/foodcomp.

Chips and Fries Are Higher in Fat and Calories Than Baked Potatoes

Nutrient	Unit	Baked potatoes without peel	Baked potatoes with peel	Chips	Frozen french fries
Food energy	Calories	92.4	108.4	536.0	309.1
Protein	Grams	2.0	2.3	7.0	4.0
Carbohydrate	Grams	21.4	25.1	52.9	38.6
Total fat	Grams	.1	.1	34.6	16.1
Saturated fat	Grams	.03	.03	11.0	5.0
Dietary fiber	Grams	1.5	2.4	4.5	3.2
Potassium	Milligrams	388.7	415.6	1,275.0	712.0
Vitamin C	Milligrams	12.7	12.82	31.1	5.3
Folate	Micrograms	9.0	10.9	45.0	33.0
Vitamin A	International unit	0	0	0	29.0

Source: Nutrient Data Laboratory, Agricultural Research Service, USDA.



Food companies market frozen french fries for home consumption, but close to 90 percent of french fries are obtained from fast food places, restaurants, and other away-from-home sources.

Credit: PhotoDisc.

Other factors should be considered, however. Elderly people had the highest consumption of fresh and canned potatoes and the lowest consumption of potato chips, french fries, and other frozen potato products. On one hand, with the aging of the Nation's population, consumption patterns could begin to favor fresh potatoes. On the other hand, consumption patterns acquired during young ages may change little as consumers age. Today's teenagers could continue heavy consumption of french fries as they age. The future, therefore, is unclear with respect to the consumption growth of fresh potatoes and french fries.

References

Lin, B.H., J. Guthrie, and E. Frazao. *Away-From-Home Foods Increasingly Important to Quality of American Diet*, Agricultural Information Bulletin No. 749. U.S. Depart-

ment of Agriculture, Economic Research Service, 1999.

Plummer, C. "U.S. Potato Briefing Room." U.S. Department of Agriculture, Economic Research Service, <http://www.ers.usda.gov/briefing/potatoes/>

Putnam, J., and J. Allshouse. *Food Consumption, Prices, and Expenditures, 1970-99*. U.S. Department of Agriculture, Economic Research Service, forthcoming.

Talbert, W.F. (ed) *Potato Processing*, 4th Edition. New York: Van Nostrand Reinhold Co., 1987.

U.S. Department of Agriculture, Agricultural Research Service. *1994-96 Continuing Survey of Food Intakes by Individuals and 1994-96 Diet and Health Knowledge Survey*. 1998. ■

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